

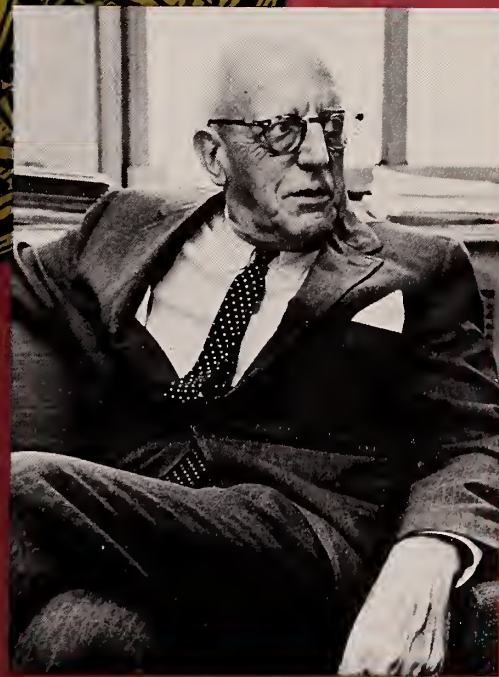
# HARVARD MEDICAL

ALUMNI BULLETIN

SPRING 1991



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MEDICAL ALUMNI ASSOCIATION



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ALUMNI BULLETIN / SPRING 1991 / VOL. 64 NO. 4

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Cover: The original seal of the Harvard Medical School Association, 1891.

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*We all praise famous men,  
Ancients of the college,  
For they taught us common sense,  
Tried to teach us common sense,  
Truth and God's own common sense  
Which is more than knowledge.*

—Rudyard Kipling

In this issue of the *Bulletin* we praise a century of the Harvard Medical Alumni Association, and, in a special way, Bill Castle '21, a legend in his time, who died last August in his 94th year. We call back the words of friends and family at his memorial service in Cambridge; we read his own account of growing up in a faculty family and follow with a lively journal of his first trip abroad in 1923 with his close friend, E. D. Churchill '20. Then three of his professional colleagues, Steve Robinson '58, current master of the Castle Society, Franklin Bunn and David Nathan '55 speak in chorus—and somewhere in the family album we find a picture of the Model A Ford, Castle's "extrinsic tractor."

This issue sets the stage for the forthcoming Centennial of the Alumni Association this June. A chapter from a history of the Association by Nora Nercessian tells of James R. Chadwick, Class of 1871, and his merry men at its creation in 1891.

One hundred years later we spend the morning wandering down the New Pathway with George Bascom '52, but only after going to the medical school of the 1880s with the venerable Alfred Worcester, Class of 1883, and listening to Carl Walter's, Class of '32, tales of the Old Pathway 50 years ago.

You will also find the program for special Alumni Day events this year, when you will be urged to take part in a meaningful discussion of the current state of medicine. Is this the summer of our discontent?

So that the forum will not be entirely free-floating, we take this opportunity to bring you the results of an opinion survey of what Harvard medical alumni think. A few facts are good points of departure. Be prepared, be sure to come and join in—Friday, June 7, the Old Hundredth!

—J. Gordon Scannell '40

# HARVARD MEDICAL

## ALUMNI BULLETIN

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# ALUMNI COUNCIL: PRESIDENT'S REPORT

## Alumni Attachments and Commitments

by Robert M. Goldwyn

This issue of the *Bulletin* contains a distillate of the survey initiated by the Alumni Council on "A Career in Medicine: A Promise Fulfilled?" The council and the Alumni Association believe strongly that a study of this nature was very much needed and long overdue.

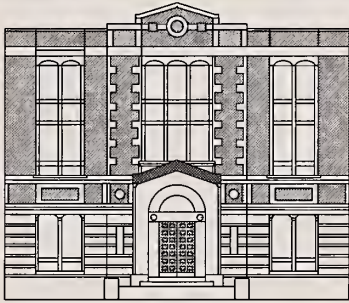
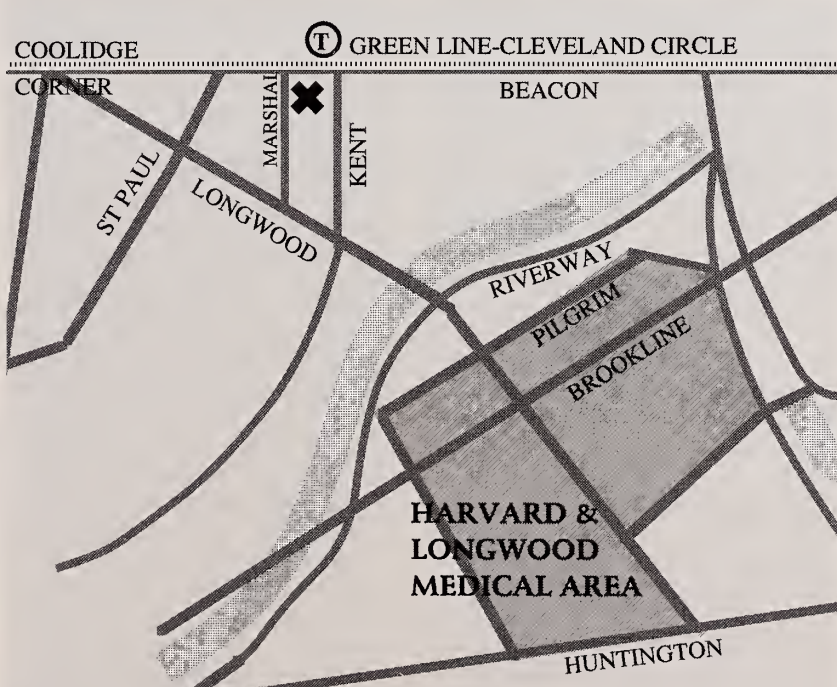
Dean Daniel Tosteson '49 and the administration of the medical school supported the project, not just conceptually but fiscally. Working with Michael P. Massagli, PhD, Floyd J. Fowler Jr., PhD and Lisa Meriney, MS

from the Center for Survey Research at University of Massachusetts/Boston, E. Langdon Burwell '44 and his committee have achieved much in two and one-half years.

During Alumni Week, two days of symposia (June 6 and 7, 1991) are being planned by Paul J. Davis '63 and his committee. Panels will center on the findings from this survey and the issues it has touched upon: e.g., satisfactions and dissatisfactions in the practice of medicine, health care research and quality of care, regulatory constraints, reform to reduce the malpractice bur-

den, health care access, and medical education in general and Harvard Medical School in particular. We expect the sessions to be thorough and factual, but decidedly controversial—guaranteed to raise our level of circulating catecholamines.

I should point out that this recent survey is another example of the traditional and continuing activity of the alumni of Harvard Medical School. Alumni have been conducting surveys since 1913, when a questionnaire was mailed to 900 Harvard Medical School graduates from the classes of 1901 to



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1910. Although the stated purpose then was to "gather such information as may be of help to medical students," the questions went beyond the usual biographical data, such as location of practice, type of work, salary and specialty. As described in "The Alumni Survey Committee: Origins, Evolution, Accomplishments" by Charles David Godley '91 and Nora N. Nercessian, PhD: "Alumni were asked to evaluate the requirements for their pre-medical and medical education in preparation for a career in medicine; the state of the profession of medicine; their predicament as the practitioners of the art; and their concerns regarding their profession . . ." Their responses (about 33 percent replied) were published by the Harvard University Press in 1913-1914.

That the alumni of this medical school feel a strong attachment and obligation to their alma mater is more than commendable. The concerns of alumni have always included those who will become future physicians. Continuing that tradition, the Alumni Council, at its meeting on October 26, 1990, asked Dean Tosteson to appoint a stellar, multidisciplinary committee to examine the financial indebtedness of Harvard Medical School students, with the hope of finding new ways for students and their families to meet the increasing, crushing costs.

If one talks to students, it is soon obvious that their financial plight is their major preoccupation. It is almost too simple to state that medicine in general and Harvard Medical School in particular will ultimately depend for its quality upon those who choose to follow in the pathway of Hippocrates. Yet unless we can find ways to lower the financial hurdles, entry into a medical career may become increasingly determined by fiscal capability rather than intellectual capacity.

While such a dire prognostication may seem like hyperbole, this will be the reality unless private medical schools, alone or together with federal and state governments, are successful in working out ways to ensure that aspirants of high ideals and top performance, no matter what their financial holdings, if any, will be able to become doctors. The Alumni Council's concern about the financial indebtedness of students is not limited to my tenure, but will continue until some solutions are found for problems that yearly become more complex.

On a less solemn note, and on behalf of the Alumni Council, I should like to end this report with a most

heartfelt invitation to every graduate of Harvard Medical School to return to the Quadrangle to enjoy the fusion of the past with the present as we ponder the future. Since this year marks the centenary of the Alumni Association, the fare for Alumni Week has been carefully planned to stimulate even the most jaded among us. We would espe-

cially like to have reunion classes (such as my own) set attendance records. I personally look forward to seeing you in June. □

*Robert M. Goldwyn '56 is clinical professor of surgery at HMS, and head of the Division of Plastic Surgery at Beth Israel Hospital.*

## LETTERS

### A Mistake in Time

The arrival of the Summer '90 issue of the *Bulletin* just before departure for a long trip abroad delayed my reading of that excellent issue until recently. Especially interesting was the article, "Dr. Guillotin and His Non-Invention." Of especial interest was the date of the visit to the priest by the executioner Sanson, 1773, 200 years after his execution of the French king. The author should have revealed the secret of Sanson's long life before the days of low cholesterol and other fad diets.

Also, in a publication for physicians, it should have been recorded that Dr. Guillotin received his MD from Edinburgh.

—Theodore B. Massell '31

*Oops! Reporting the wrong year was a typographical error, not the author's.*

### Women at HMS

I read with interest the contributions celebrating affirmative actions published in the Fall 1990 issue of the *Harvard Medical Alumni Bulletin*. It was particularly informative to read Dr. Eisenberg's description of the earlier years, since most of us who were students then were oblivious to the crucial faculty actions in spring 1968, which led to admission of a substantial number of minority students. It was thus

remarkable to me that the class admitted when I was a senior had so many black students, particularly when my own class had none.

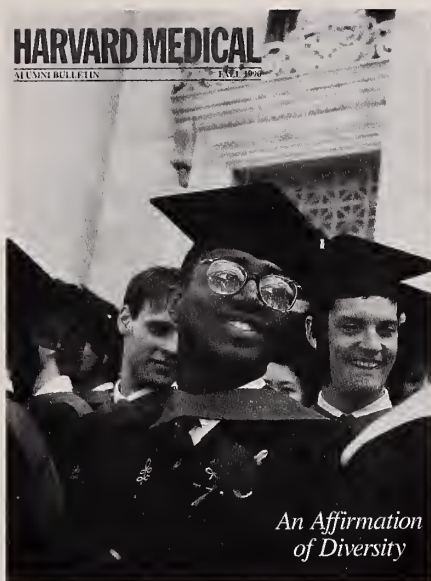
Women at Harvard had many of the same experiences as blacks in those days, though we were neither recruited nor had the benefit of student counseling. But we both suffered from lack of mentors or identifiable role models on the faculty.

In 1969 women accounted for only 7 percent of medical school admissions nationwide, and the percentage of women members of medical faculties was even lower. There were exactly 10 women in my class, and though it would be presumptuous of me to suggest that was a quota, the precise similarity of the proportion in many preceding years is uncanny. The proportion didn't change until the impact of the women's movement was felt.

Women were first admitted to HMS during World War II, more than a century later than at some other medical schools. I well remember that the year of my graduation marked the 25th anniversary of the entry of women to Harvard Medical School, and that Class Day and the accompanying issue of the *Bulletin* that year were dedicated to women in medicine. As we approach the 50th year of women in medicine at Harvard, the golden anniversary, perhaps it would be an appropriate time for a reprise.

—Sharon Murphy '69





## An Affirmation?

Great cover photo (Fall '90), and great way to illustrate your theme of affirming diversity! Hopefully this is not tokenism.

—Pat Falcao, MD, MPH (HSPH)

## Bernard Davis Responds

In the Fall 1990 issue Leon Eisenberg describes the history of the development of affirmative action at HMS. I share his pride in a program that has brought many excellent minority students to this school. But I must protest Dr. Eisenberg's loaded picture of the unfortunate episode that resulted when I criticized some of the procedures that had been introduced: "The program survived a painful attack in the *New England Journal of Medicine* by a senior faculty member, who questioned whether 'standards' were being stretched to award diplomas to students 'unable to handle the material'." Since I was that professor, and since many readers will not be familiar with this history, I am asking the editor to reprint my *NEJM* guest editorial. I also wish to add the following facts. (A more

detailed history can be found in a collection of my essays, *Storm Over Biology*, Prometheus Books, 1986.)

1. An unbiased reading will show that my article supported the true goals of affirmative action but criticized an excessive lowering of standards. Dr. Eisenberg's quotes around "unable to handle the material" seem to suggest that this was a false charge. But the stimulus for the editorial was that a student had failed National Board Examinations five times and yet had passed all our courses.

2. The editorial was virtually identical with an earlier statement, endorsed by six faculty colleagues, that I had presented to the Faculty Council. I was commended by Dean Ebert and others for this clear formulation of an important problem. Because many other schools were facing similar problems and might find the document useful, I removed identification of HMS and submitted it to the *NEJM*.

3. I had not anticipated that the article would draw wide attention from the news media, since an earlier, similar *NEJM* editorial had not. Also, I had not anticipated how my answers to journalists' questions could be selectively reported so that comments about a fraction of the minority students would appear as an attack on the competence of all. I subsequently made a public statement that tried to correct such misinterpretations.

4. The dean launched a vigorous campaign denouncing my position, including a detailed account in the *Harvard Medical Alumni Bulletin*. My protests, and my proposals for dealing with the distortions, led the dean and the editor to apologize in a subsequent issue.

5. When the Bakke case came up some years later, the public debate was limited to the two extremes for medical school admissions: quotas or a completely color-blind policy. In the *New York Times* and the *Wall Street Journal*, I suggested a compromise: a reasonable stretching of academic standards, but not a numerical quota, which removes the possibility of controlling the degree of stretch. This position turned out to be essentially the same as the subsequent decision by the Supreme Court, based on rather different reasoning.

6. Since the references in the Fall '90 *Bulletin* clearly create a racist image, I feel compelled to note that I was the first department chairman in the university's history to promote a black professor to tenure.

I can understand the continuing anger expressed in another article in

the same issue by Woodrow Myers '77, who was an aggrieved black student here at the time of the *NEJM* editorial. But I find it unfortunate that Dr. Eisenberg, with a fuller knowledge of the complex history, should report it in this way, and should place "standards" in quotes. Viewing standards as a mythical concept, or as irrelevant to affirmative action, will only postpone an effective solution to its goal of achieving equal opportunity.

—Bernard D. Davis '40

## Academic Standards in Medical Schools

Reprinted with permission from *The New England Journal of Medicine* 294: 1118-1119 (May 13, 1976).

Since the consumer is particularly blind in purchasing medical care, and his vital interests are often at stake, those who are in a position to screen for aptitude and competence in medicine have a grave moral responsibility. In accepting this responsibility medical faculties have always taken into account qualities of character and motivation as well as scientific ability and knowledge. In addition, in recent years we have finally begun also to take into account long ignored social needs. But no one of these sets of qualifications can compensate for a gross deficiency in another. In particular, as the practice of medicine broadens its scientific base, it increasingly requires a reason-

### Erratum:

In the Winter '90/91 issue, we made an error in acknowledging the source of the Tregear print, "Chip of the Old Block." The print is among a collection donated to the school by Robert N. Ganz '24 and his wife, Claire M.

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able level of competence in science, at least as long as the MD degree leads to an unlimited license to make life-and-death judgments. In this connection preclinical courses serve not only to provide a scientific background for practice but also to screen students for the ability to reason scientifically.

This screening has become more difficult in recent years. A variety of considerations have led medical schools to engage in innovations in admissions, curriculum, grading and criteria for promotion. Some faculties, no longer confident of their ability to maintain adequate minimal standards, have set an external standard by requiring candidates for the diploma to have passed Parts I and II of the National Board Examinations. But for schools that have aimed at leadership this minimal national standard is an extraordinarily low one. Moreover, it has been further lowered in recent years: National Board grades are normalized for each year's population, and so the absolute norm for passing is necessarily lowered by any nationwide increase in admission of students with substandard academic qualifications.

It would be a rare person today who would question the value of stretching the criteria for admission, and of trying to make up for earlier educational disadvantages, to help disadvantaged groups. But how far faculties should also stretch the criteria for passing students is another matter. If a board licensing airline pilots allowed extraneous considerations to interfere with

objectivity it would be considered criminal. The temptation to award medical diplomas on a charitable basis raises the same question, even though the consequences of fatal error in the two professions are not equally visible and dramatic.

Many faculty members have wondered whether the stretching of standards in their schools in recent years has not exceeded what is reasonable. The problem is illustrated by a distinguished school that recently waived its National Board requirement and awarded a diploma to a student who had been unable to pass Part I in five tries. The award of this degree was virtually inevitable, after five years of investment by the school and the student. But we must look at the erosion of internal standards, and the postponement of decision, that allowed this situation to develop.

Medical faculties can derive deep satisfaction from their success in recruiting and helping many able students from groups that were formerly excluded. But it has also become apparent that patience and sympathy cannot overcome the inability of some students to handle the material. It is cruel to admit students who have a very low probability of measuring up to reasonable standards. It is even crueler to abandon those standards and allow the trusting patients to pay for our irresponsibility.

Considerations of tact, and guilt over our history of enormous racial injustice, have made it difficult to face the problem. But there are dangers in a policy that fails to evaluate the results of our recent experiments objectively. If the public is given a romanticized view we can expect demands for the extension of quotas, rather than demands for strengthening the quality of the product. Thus, recent statements by Senator Edward M. Kennedy (*New York Times* letters to the Editor, March 21 and 31), calling attention to the unequal supply of medical students from different socioeconomic groups, could well be the first step toward quotas for admission from these groups.

It seems time for medical faculties to ask whether we have been properly balancing our obligation to promote social justice with our primary obligation to protect the public interest, in an area in which the public cannot protect itself.

—Bernard D. Davis, MD  
Harvard Medical School  
Boston, MA

## Uncritical Appreciation

Lest you think that my role is that of adverse critic, let me tell you how much I liked the Winter '90/91 issue. Not surprising that a pediatrician-turned-child psychiatrist would enjoy it, but the whole tone of concern for larger policy issues appealed to my public health interests.

While I am grateful for all of the articles, I appreciate your including my long-time colleague Barry B. and especially my erstwhile trainee, Gloria Powell. Of her I am very proud, going back to some crusades in Venice 20 years ago.

But it was also good to be enlightened by authors whom I had not known and to read their expressions of concern for children.

Finally, thank you for the obit on Simie. I still recall vividly July 1936, when I did my senior year rotation at the MGH and, with several interns on vacation, was able to be a working part of the team. True, Simie and Claude Welch '32 suggested that I might become a surgeon, but that was their only misdiagnosis as far as I was concerned.

—Henry H. Work '37

## Praise for Children's Issue

I want to congratulate all who took part in the "birthing" of the Winter '90/91 issue of the *Bulletin*, "Care for the Children." In these days, when we find so many evidences that our relatively affluent society seems to give such low priorities to the welfare of our children and their preparation for the future—our country's future—this last issue was, for me, a real breath of hope!

I am now doubly grateful to the management of the *Bulletin* for their kindness in continuing to send the magazine to me since my husband's (Stanley O. Hoerr '36) death last March, thus making it possible for me to have read this very fine issue.

I am usually a very sporadic reader of magazines, but I always looked forward to the arrival of Stan's copy of the *Bulletin* because I so often found articles or whole issues (such as the great one on "Religion and Medicine") that were—for me, a layman—absorbing and informative.

—Janet U. Hoerr

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## Highly Recognized

Four Harvard Medical School faculty and alumni joined the esteemed ranks of National Medal of Science recipients in November 1990.

Awards went to Baruj Benacerraf, HMS Fabyan Professor and head of pathology; Elkan Blout, the Edward Harkness Professor of Biological Chemistry *Emeritus*, and a former

dean of academic affairs and director of the division of biological sciences at the Harvard School of Public Health; David G. Nathan '55, the Robert Stranahan Professor of Pediatrics and physician-in-chief at Children's Hospital; and E. Donnall Thomas '46, *emeritus* professor at the University of Washington and the Fred Hutchinson Cancer Research Center.

Benacerraf, who in 1980 shared the

Nobel Prize in Physiology or Medicine, and is president of the Dana Farber Cancer Institute, was cited for "his fundamental contributions to the understanding of the immune system, including much of the work which forms the basis of knowledge and regulatory function in the immune response." Blout was awarded for "his pioneering studies of protein conformation and devotion to the scientific enterprise of this nation."

Nathan was cited for contributing to the understanding of "the pathology, physiology, diagnosis and treatment of thalassemia" and for his research in hematology and in improving the diagnosis and treatment of blood disorders. Thomas, co-recipient with Joseph Murray '43B of the 1990 Nobel Prize for Physiology or Medicine, was honored for "his pioneering work in the science and application of transplantation biology to successful bone marrow transplantation in man for the treatment of cancer and related conditions."

The awardees, who were nominated by the National Academy of Sciences and other scientific and engineering organizations, were honored during a presidential ceremony at the White House. □

SUSAN BRAY



Baruj Benacerraf

BARBARA STEINER

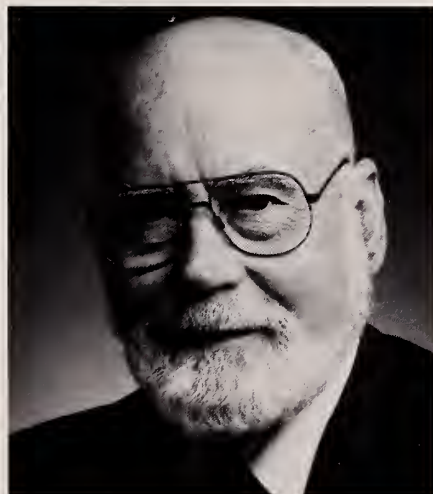


Elkan Blout

R.J. MCDUGALL



David G. Nathan '55



E. Donnall Thomas '46

## Advances in Angiogenesis Research

Work on angiogenesis and its role in solid tumor development, pioneered 30 years ago by M. Judah Folkman '57, continues to bear fruit.

Folkman, the Julia Dyckman Andrus Professor of Pediatric Surgery, hypothesized in 1973 that tumors must increase their supply of blood vessels (angiogenesis) to grow, and that inhibiting angiogenesis would inhibit tumor growth. Two recent studies offer significant advances toward applying this concept to tumor treatment: one using the density of blood vessels as a predic-





M. Judah Folkman

tor of a tumor's metastatic potential and the other reporting discovery of an angiogenesis inhibitor.

Angiogenesis is necessary for the growth of the primary tumor as well as for metastasis, so it is an important marker of the tumor's progress as well as a potential target for cancer therapy, explains Folkman. He and his colleagues at Harvard and elsewhere have worked to exploit these characteristics of angiogenesis for therapeutic benefit. (Abnormal angiogenesis is also thought to be critical in such diseases as diabetic retinopathy and rheumatoid arthritis.)

The discovery of a fungus that could inhibit tumor growth has generated excitement not only because it may lead to a relatively nontoxic cancer therapy, but also because its serendipitous discovery is remarkably similar to Fleming's of penicillin. Donald Ingber, an assistant professor of pathology at Children's Hospital and Brigham and Women's, found a fungus contaminating one of his endothelial cell cultures. The effect on the contaminated cells was intriguing enough that Ingber committed what is considered a cardinal sin in the laboratory: instead of destroying the contaminated cells, he cultured the contaminant to identify the fungus.

He confirmed his hunch that the fungus was secreting something that could suppress angiogenesis, and began a collaboration with Harold Brem and Folkman at Children's, and with researchers from the Takeda Chemical Industries in Japan, which is supporting some of the lab's studies. They identified the active compound in the

fungus as *fumagillin*, an antibiotic that has been used to treat amoebiasis. *Fumagillin* had been tested previously against tumors, but was found to produce severe weight loss; to bypass the side effects, the researchers experimented with synthetic analogues. They reported in *Nature* on December 6, 1990 finding one analogue that was 50 times more potent than *fumagillin* itself, and which in mice inhibited the growth of tumors without any significant side effects.

In another recent study at Harvard, Noel Weidner, assistant professor of pathology at Brigham and Women's, and his collaborators—Joseph Semple, clinical fellow, William Welch, associate professor of pathology, and Folkman—were able to correlate the degree of new blood vessel density in breast tumor specimens with the probability of metastasis. Their results were reported in the January 3, 1991 issue of *The New England Journal of Medicine*.

When the implications of these results are confirmed, say the researchers, this method may help oncologists in their decisions about chemotherapy. They also expect that the technique will be applicable to other solid tumors. □

## Matters of the Heart

The newly published *Harvard Heart Letter* has joined the ranks of two other monthly HMS health publications, the 15-year-old *Harvard Health Letter* and the 6-year-old *Mental Health Letter*. Cardiologists Lee Goldman and Thomas Lee of Brigham & Women's Hos-

pital are co-editors of the *Heart Letter*, which made its debut September 1990.

Why a newsletter on the heart? "Heart disease is the number one killer, and from a preventive standpoint there is so much that can be done through personal habits and lifestyle," said Faculty Dean for Continuing Education Stephen Goldfinger, who directs the medical school's new Health Publications Group, which publishes all three health letters. William Bennett '68 is editor of the *Health Letter* and Lester Grinspoon '55 is editor of the *Mental Health Letter*.

The monthly, eight-page *Heart Letter* is designed to answer patients' often unasked questions about heart disease. The *Harvard Heart Letter* includes two regular features: "Heart Line," which summarizes current cardiovascular research of general interest to readers, and "Cardiospeak," which seeks to clarify commonly used medical terms.

Articles in the past five issues of the *Harvard Heart Letter* have addressed a wide range of cardiovascular topics, including stress tests, the reversal of coronary artery disease, alcohol and the heart, and sudden death.

Lee Goldman, a clinical epidemiologist, is also an associate editor of the *New England Journal of Medicine*. Thomas Lee co-authored with his brother Richard the textbook *Cardiology: Problems in Primary Care*. They hope that through the *Heart Letter* they can create an informed readership who knows what to ask their physicians. □

## New and Old Vanderbilt Hall

*So let the rafters ring with study  
and with wit.*

*And let alumni everywhere prepare  
to do their bit.*

*And let the message spread to the  
corners of the earth.*

*That this is a center of gravity, but  
also a center of mirth.*

—Daniel Federman '53, dean for  
medical education

With poetry, Federman closed the evening celebrating the re-dedication and re-opening of Vanderbilt Hall—an event at which Dean Daniel Tosteson '48 encouraged the 220 attendants to "Raise a glass to the past, present and future of Harvard medicine." The black-tie affair on January 26 topped off a year of renovations to the 63-year-old dormitory.

During his postprandial presentation Tosteson reminisced about living

FROM HARVARD MEDICAL SCHOOL

## Harvard Heart Letter

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### Sudden Death During Exercise

When world famous runner Jim Fixa died suddenly in 1984, the fitness movement lost one of its most ardent advocates. It also received a disturbing surprise—when the autopsy report revealed that this athlete had coronary artery disease. Despite his years of strenuous exercise, the arteries supplying his heart muscle had become narrowed by atherosclerosis. By reducing the heart's oxygen supply, these blockages almost surely caused Fixa's collapse and death.

For some people this tragedy provided an excuse—albeit a lame one—to avoid exercise. Many others who were already exercising regularly or were thinking of starting a fitness program began to wonder whether a workout would pose more risks than benefits. Could exercise actually be hazardous to health? The answer is yes and no. Although the overall impact of exercise on health is beneficial, some people may be at greater risk for heart problems during exercise.

**Short-term risks**

Although Jim Fixa's death while running was a shock, it would have been surprising had he died during a less strenuous activity. When a person exercises, the heart must pump more blood. To do this, it requires extra oxygen and nutrients. If the blood vessels supplying the heart are partially blocked because of atherosclerosis, the additional oxygen may fail to reach the muscle cells that need it. The result can be ischemia, a condition in which the heart muscle is not receiving enough blood. (See "Cardiospeak," *Harvard Heart Letter*, September 1990.) In some cases such deprivation causes no symptoms. But severe ischemic episodes usually produce chest discomfort (angina). According to the available evidence, Fixa experienced such symptoms before he died but failed to seek medical attention.

It is one thing to develop ischemia during an exercise test, when a physician is monitoring blood pressure and the electrocardiogram; it is another matter altogether to stress the heart beyond the limits of its blood supply while one is alone on a country road. During a stress test, ischemia can be detected as soon as it begins, and the test can be stopped before permanent damage ensues. Perhaps more important, the physician can respond quickly when abnormalities of heart rhythm (arrhythmias) result from ischemia or the high levels of adrenaline associated with exercise. When a weekend athlete is determined to "run through the pain" and ignore warning symptoms such as chest pressure or lightheadedness, these arrhythmias can impair the heart's function and cause collapse.

Although arrhythmias can occur even in the absence of coronary artery disease, sudden death is very rare in people who have no major underlying cardiovascular abnormality. When a young basketball player dies during a game (as was the case with Louisville Marquette star Hank Gathers), a likely culprit is hypertrophic cardiomyopathy, a condition in which the heart muscle becomes thick and prone to arrhythmias. Another possibility is Marfan's syndrome, an inherited disease in which patients are unusually tall, with long arms and legs, and have a tissue ab-

Also in this issue

**MEtE: An Exercise Guide**

**Mitral Valve Prolapse**

**Heart Line**

**Potassium for Hypertension?**

**"R" is for Kiwi**





*Cynthia Krane and Robert Trelstad '65 dance at the Vanderbilt Hall re-dedication.*

in Vanderbilt, and shared memories of other alumni who had answered the question, "What do you remember most about Vanderbilt Hall?" The responses were varied. J. Michael Bishop '62 had answered the query with, "I wish I had all those friends together in one place today." John S. Graettinger '45 had replied, "Your favorite Vanderbilt Hall story or quote?—they are unprintable, but fondly remembered."

While the external surface of Vanderbilt remains unchanged, the inside has been remodeled. Robert Goldwyn '56, president of the Alumni Council, said that he had toured Vanderbilt with a senior alumnus who discovered that his old room had been turned into a kitchen.

Renovations, however, have brought modern amenities: 49 additional single rooms, phone and computer hookups, an elevator, as well as a brand new gym, music practice rooms and kitchens. A computer networking system will be completed within the next two years.

Feting at Vanderbilt is one of a bevy of activities throughout the year that the Centennial Planning Committee, chaired by Nina Tolkoff Rubin '68, has organized to celebrate the Harvard Medical Alumni Association's centennial. This event was organized in conjunction with the Aesculapian Club's annual dinner.

President Eleanor Shore '55, gave a brief account of the 88-year-old club's interests. The club's goals, said Shore, are simple: "One is to sustain and improve the quality of life for students by periodic gifts to the medical school, and the other is that on an annual basis,

it improves the quality of life of its own members."

With its long tradition of being "a bit player or supporting actor in the drama of HMS," the club's 1990 gifts for Vanderbilt are a grand piano for one of the practice rooms, and a commitment to annually purchase books for the Oliver Wendell Holmes Library for as long as the club is solvent. □

## All Invited to Alumni Week

Alumni Week 1991 is packed with programs and other activities, and aspires to tempt attendance by more than just those due to reunite this year. From the Coleus Society's luncheon on Wednesday, June 5 to the banquet Friday evening in the university's Memorial Hall, Alumni Week is the grand finale of the Alumni Association's centennial celebration.

Much of Thursday and Friday's symposia grew from information culled from the Alumni Council's survey of physician satisfaction. It is a two-day program, says Dean for Education Daniel Federman '53, that is "sculptured" to interconnect ideas. CME credit is offered both days.

Results of the survey itself will be summarized and commented upon Friday morning, in place of the traditional speeches. (A copy of the survey summary appears in this issue of the *Bulletin*.) This is also the first Alumni Day when extensive discussion by those attending has been planned. "We're expecting plenty of fireworks," says Federman.

The Alumni Day program will last all day this year, with panels of alumni and other renowned physicians addressing issues raised by the survey, such as "health care for all," access, malpractice, the hassle and stress of practice, and the response of medical education to changing needs and roles of graduates.

As has been the tradition since 1978, two day-long programs of scientific symposia will be offered simultaneously on Thursday, one program organized by the 25th reunion class, this year the Class of 1966. "As is true every year, we can't but be terrifically impressed with the symposium one HMS class can put together," says Federman.

The other program is entitled "Science, Ethics and the Future of Practice," which, reports Federman, was designed to tie into another theme that emerged from the alumni survey—that "the intellectual excitement of medicine is just as valid today as when we started out." Each of the speakers for this program has been asked to talk about science coming out of the lab now, and what it means to the future of practice today—"not in the year 2010." Speakers on the final panel will bring out the ethical dimensions of the new work discussed in genetics, neurobiology and intensive care.

A banquet in Memorial Hall Friday evening will then cap the year's celebration, inaugurating the 101st year of the Harvard Medical Alumni Association. □

*Please see pages 10-11 for symposium schedules.*

## Seat Shortage at HU Commencement

Once again this year, attendance at the morning exercises at the Harvard University commencement is expected to fill Tercentenary Theatre to capacity. Therefore, in accordance with last year's guidelines, please note the following: All parents and guests of degree candidates must have tickets to enter Tercentenary Theatre. Tickets are available from the Harvard Alumni Association at Wadsworth House. Morning exercises can also be viewed on large-screen televisions in Sanders Theatre, various Science Center rooms, and in most of the houses and graduate schools. For additional information, please call HAA at (617) 495-5731. □

THURSDAY, JUNE 6

*HMS '66 Presents*  
**SCIENTIFIC SYMPOSIA  
FOR HARVARD MEDICAL ALUMNI**  
Amphitheatre D, Harvard Medical School

8:00 AM–9:00 AM

**Registration**, Faculty Room, Building A

9:00 AM–10:15 AM

**PANEL I**

**Moderator:** Charles J. Hatem '66 *Assistant Professor of Medicine, HMS; Director of Medical Education, Mount Auburn Hospital, Cambridge, MA*

Ned H. Cassem '66 *Associate Professor of Psychiatry, Chief of Psychiatric Service, Massachusetts General Hospital*  
**"Patrick Henry's Second Choice"**

John M. Ludden '66 *Director, Harvard Community Health Plan*

**"Maxims from Managed Care: A Twenty-Five Year Report"**

Richard J. Hannah '66 *Internist, Private Practice*  
**"Reflections of a (usually) Happy Internist"**

10:45–12:00 NOON

**PANEL II**

**Moderator:** Carlton M. Akins '66 *Associate Professor of Orthopedic Surgery, University of Massachusetts Medical School*

Barbara J. McNeil '66 *Ridley Watts Professor of Health Care Policy, Harvard Medical School*  
**"Health Care Policy in the '90s: HMS's Role"**

Eugene J. Mark '66 *Associate Pathologist, Massachusetts General Hospital*

**"Mystery Theater at the MGH:  
23 Years of Trial by Ordeal of the CPC"**

Robert H. Fletcher '66 *Co-Editor, Annals of Internal Medicine*

**"Medical Editing in the 1990s"**

12 NOON to 2:00 PM

Lunch at MEC Atrium

2:00 PM–3:15 PM

**PANEL III**

**Moderator:** Jonathan Glass '66 *Professor of Medicine, Louisiana State University Medical School*

David C. Dale '66 *Professor of Medicine, University of Washington School of Medicine*

**"Recombinant Proteins for the Treatment of Human Disease: the Example of Granulocyte Colony Stimulating Factor (G-CSF) for Severe Chronic Neutropenia"**

Theodore P. Pincus '66 *Professor of Medicine and Microbiology, Vanderbilt University*

**"Research on Formal Education and Health:  
Implications for Health Care and Health Policy"**

Michael F. Marmor '66 *Professor and Chairman of Ophthalmology, Stanford University School of Medicine*  
**"Vision and Art"**

3:45 PM–5:00 PM

**PANEL IV**

**Moderator:** William C. Wood '66 *Whitehead Professor and Chairman of Surgery, Emory University*

James S. Gordon '66 *Clinical Professor, Departments of Psychiatry and Community and Family Medicine, Georgetown University School of Medicine*

**"Illness and Personal Transformation"**

Joan Lamb Ulliot '66 *Marathon Runner, Sports Medicine Physician, Psychotherapist*

**"Have MD, Will Travel"**

David E. Scharff '66 *Director, Washington School of Psychiatry; Clinical Professor of Psychiatry, Georgetown University School of Medicine and Uniformed Services University of the Health Sciences*

**"Reunions"**

THURSDAY, JUNE 6

**SCIENTIFIC SYMPOSIA**

MEC Amphitheater, HMS

8:00 AM–9:00 AM

**Registration**, Faculty Room, Building A

**SCIENCE, ETHICS, AND THE FUTURE OF PRACTICE**

9:00 AM–10:15 AM

**PANEL I: Critical Care**

**Moderator:** Robert H. Demling, MD *HMS Professor of Surgery, Surgery, Brigham and Women's Hospital*

Herbert B. Hechtman '60 *HMS Professor of Surgery, Surgery, Brigham and Women's Hospital*

**"Mediators of Ischemic Injury"**

David J. Cullen, MD *HMS Professor of Anaesthesia, Massachusetts General Hospital*

**"Intensive Care: Implications of Cost, Outcome, and the Need to Ration"**

10:30–12:00 NOON

**PANEL II: The New Genetics in Medicine**

**Moderator:** Philip Leder '60 *John Emory Andrus Professor of Genetics, HMS; Chairman, Department of Genetics, HMS*

Christine E. Seidman, MD *Department of Medicine, Brigham and Women's Hospital; Assistant Professor of Medicine, Department of Genetics, HMS*

**"Understanding the Molecular Cause of IHSS:  
An Inherited Form of Cardiac Hypertrophy"**

Stuart H. Orkin '71 *Leland Fikes Professor of Pediatric Medicine, HMS, Children's Hospital*

**"From an Inherited Genetic Disorder to Hematopoietic Differentiation"**



12 NOON–2:00 PM

Lunch at MEC Atrium

2:00 PM–3:00 PM

**PANEL III: Neuroscience**

**Moderator:** Gerald D. Fischbach, MD *Nathan Marsh Pusey Professor of Neurobiology, HMS; Chairman, Department of Neurobiology, HMS*

David D. Potter, PhD *Robert Winthrop Professor of Neurobiology, HMS*

**“Neurobiology of Drug Addiction”**

Huntington Potter, PhD *Assistant Professor of Neurobiology, Department of Neurobiology, HMS*

**“Molecular Biology of Alzheimer’s Disease”**

3:30 PM–5:00 PM

**PANEL IV: Ethical Dimensions**

**Moderator:** Lynn M. Peterson, MD *Assistant Professor of Surgery, Assistant Professor of Medical Ethics in the Department of Social Medicine and Health Policy, Division of Medical Ethics, HMS*

Peter McClaren Black, MD *Franc D. Ingraham Professor of Neurosurgery; Associate of Adams House, Neurosurgery, Brigham and Women’s Hospital*

**“Ethics in the Decade of the Brain”**

Lynn M. Peterson, MD

**“The ‘New’ Genetics: Implications for Health Care Delivery and Practitioners”**

Ned H. Cassem ’66 *Associate Professor of Psychiatry; Acting Head of the Department of Psychiatry, MGH*

**“Who Decides Who Should Die?”**

**FRIDAY, JUNE 7**

**ALUMNI DAY CENTENNIAL SYMPOSIUM**

Harvard Medical School Quadrangle

8:00 AM–9:00 AM

**Registration**, Faculty Room, Building A

9:00 AM–9:30 AM

Welcoming Remarks

William V. McDermott Jr. ’42 *Director of Alumni Relations*

Business Meeting of the Harvard Medical Alumni Association

Presentation of the 25th and 50th Reunion Gifts

Introduction to the Centennial and the Symposium

Daniel D. Federman ’53 *Dean for Medical Education*

9:30 AM–11:45 AM

**PANEL I: THE HARVARD MEDICAL ALUMNI**

**SURVEY QUESTIONNAIRE**

**A Profession in Medicine: A Career Fulfilled?**

**Moderator:** Robert M. Goldwyn ’56 *Clinical Professor of Surgery, HMS; President, Harvard Medical Alumni Association*

Floyd J. Fowler, PhD *Center for Survey Research, University of Massachusetts/Boston*

**“Summary of Findings of Alumni Survey”**

E. Langdon Burwell ’44 *Chairman, Harvard Medical Alumni Survey Committee,*

**Commentary**

Marilyn Karmason Spritz ’53

**Commentary**

10:15 AM–10:30 AM

Intermission

10:30 AM–11:45 AM

Discussion

11:45 AM–12:15 PM

A Nobel Moment

Daniel C. Tosteson ’48 *Dean of the Faculty, Harvard Medical School*

12:15 PM–2:00 PM

Luncheon on the Quadrangle

**AFTERNOON SESSION**

2:00 PM–3:15 PM

**PANEL II: Issues in Providing “Health Care for All”**

**Moderator:** Barbara J. McNeil ’66 *Ridley Watts Professor of Health Care Policy, HMS; Head, Department of Health Care Policy, HMS*

James Todd ’57 *Executive Vice-President of the American Medical Association*

**“New Realities”**

James O’Connell ’82 *Executive Director, Boston Health Care for the Homeless*

**“Boston Health Care for the Homeless Program”**

3:30 PM–4:45 PM

**PANEL III: Redressing the Wounds: Professional Liability and Intrusion of the Third Parties into Practice**

**Moderator:** Paul J. Davis ’63 *Professor and Chairman, Department of Medicine, Albany Medical College, Albany, New York*

Barry M. Manuel, MD *President, Massachusetts Medical Society; Associate Dean and Professor of Surgery, Boston University School of Medicine*

**“Future Directions in Professional Liability”**

Harvey Klein ’63 *Professor of Clinical Medicine, Cornell Medical College*

**“The Destruction of the Temple and Other Matters”**

**The Prepared Student**

Daniel D. Federman ’53 *Professor of Medicine and Dean for Medical Education, HMS*

# CAMPAIGN REPORT

## Financial Aid Funds

With the cost of a single year of education at Harvard Medical School now exceeding \$30,000, it's no wonder that students are so grateful to individuals who have established financial aid funds at the school. Their gratitude is apparent in the thank-you letters they write to donors:

Dear Mrs. Wallace,

I wanted to write to you and your family because the scholarship fund you established in your husband's memory has allowed me to attend Harvard Medical School this past year. . . .

Dear Mr. Harwood,

I can hardly express my gratitude to you for the financial assistance I am receiving this year from the Faith Garrison Harwood Scholarship. The scholarship allows me to make my dream in pursuing a career of medicine more possible. . . .

Dear Dr. and Mrs. Young,

I am writing to convey my gratitude for the financial assistance I am receiving this year from the Gur Tsou Yuan Scholarship Fund. It is my hope that some day I will also be able to assist Harvard Medical School students in need. . . .

Thirty thousand dollars per year—\$32,000 to be exact—is considerably more than the \$1,400 students paid per year in the mid-1930s. In those days, yearly tuition was \$400, and room and board and other fees required an additional \$1,000. Ten years later, the annual comprehensive cost increased by only \$100. As incredible as that small an increase may seem today, even more astonishing is the increase from 1935 to 1955—a mere \$900.

How times have changed. Consider, for example, the expenses a member of the Class of 1955 incurred

over four years at Harvard Medical School: roughly \$9,200. For a member of the Class of 1990, four years cost approximately \$118,000.

In the mid-1950s a student accrued an average debt of \$2,000 over the course of his or her four years at Harvard Medical School. In 1990, the typical Harvard student departed owing in excess of \$50,000.

The \$2,000 debt accrued in the 1950s represented 22 percent of total cost, whereas the \$50,000 figure accrued in the late 1980s represented 42 percent. The interest rate on \$2,000 borrowed in the mid-1950s was slightly more than 2 percent. The interest rate on \$50,000 borrowed in the late 1980s averaged 9 percent. Assuming a 10-year payback period, the \$2,000 note would require 120 monthly payments of \$18 (that's right, eighteen dollars), whereas the \$50,000 note would demand 120 monthly payments of \$633.

Daniel D. Federman '53, dean for medical education, says the school is both aware and deeply concerned about the debt that students accrue as a result of recent rises in the cost of a medical education. He raises a series of speculative questions that he says have already had a real impact on the medical education community and its students. For example, will the prospective student turn away from medicine in reaction to the high cost of a medical education? Or what of the student who decides to forego all worry about cost and enters medical school? If upon graduation this student is faced with significant debt, will he or she be drawn to a medical specialty simply because it offers a more lucrative future?

Federman says that the recent upward push in cost is a pressure affecting many private medical schools, not just Harvard. Indeed, in terms of cost of tuition, Harvard is at or below the median of private medical schools.

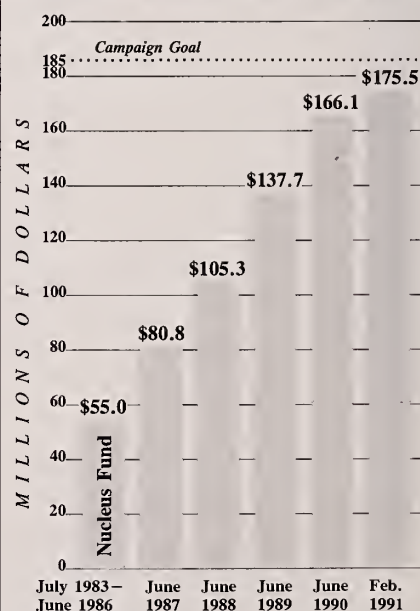
Federman also points out that Harvard's tuition, as high as it may seem to some, does not reflect the true cost of a

medical education. Although no recent quantitative study is available, it is likely that the true cost is "several multiples" higher than the actual cost.

Why is the cost—actual or true—so high? Experts in the field are reluctant to cite one overriding reason, but many point to the inflationary pressures that have affected the health care environment in general in recent years. With so much of the medical education taking place on the wards, medical schools are subject to the same inflation that impacts hospitals.

Federman says that Harvard Medical School is currently seeking ways to contain the cost, and therefore the debt, now associated with a medical education. He says that Harvard will continue its need-blind admission pol-

## Campaign for the Third Century of Harvard Medicine



The Campaign reached \$175.5 million in gifts and commitments as of February 28, 1991. The Campaign goal is \$185 million.



icy. As for students who feel compelled to enter a specialty for financial reasons, he says that the school is searching for ways to lessen the debt burden.

Ideally, the typical financial aid package would include more scholarship and less loan support. "We have made some progress in providing relief by offering loans that have a lower borrowing rate and an easier repayment schedule. But this has only modestly affected the number of students who are still graduating with debts between \$30,000 and \$100,000. To lower debt, we need to increase scholarship support."

The increase that Federman is seeking is on its way to becoming a reality, thanks mainly, he says, to alumni and other individuals who have established financial aid funds at the school during the Campaign for the Third Century of Harvard Medicine.

Federman points to alumni like Karl Engelman '59 of Philadelphia. In the fall of 1987, Engelman and his wife, Elaine, established a financial aid fund to benefit married students. He himself was married while in medical school. In establishing the Karl and Elaine Engelman Financial Aid Fund, his endowed contribution helps current and future students avoid some of the financial constraints he and his wife experienced when he was a student in Boston.

William K. Stone, dean for resources, says that finding alumni like Karl Engelman—generous individuals who understand what scholarship support means to today's students—has been a priority of the campaign. Efforts, he notes, have been on the whole successful. With the conclusion of the campaign less than a year away, Stone reports that the total raised for financial aid now stands at \$13.6 million. He is hopeful that the \$16 million goal will be met by the time the campaign comes to an end on December 31, 1991. He is not alone:

Dear Mrs. Silbert,

I recently learned that a significant portion of my financial aid for this year (my last) at Harvard Medical School is through the Joseph Silbert Fund. . . . I have thought a great deal about gifts such as the one your family has given to make medical school a possibility for students of modest means. I realize that I cannot begin to repay those who have offered me such opportunities except, perhaps, by making the most of them and, one day, by contributing in a similar way to the education of others. Thank you very much. □

## Colman Mockler Jr. 1929–1991



**I**t is my sad duty to inform the alumni of the untimely and sudden death of Colman Mockler (AB '52, MBA '54) on January 25. Colman was a faithful servant of his alma mater in many ways. He was elected to membership of the Board of Overseers in 1975 and was its president from 1979 to 1981.

As a member of the Harvard Corporation since 1982, Colman had taken a special interest in the medical school and, for the past four years, had served as co-chairman of our Campaign for the Third Century of Harvard Medicine. In this capacity, he was a devoted and wise counselor and friend of the school.

He made these many contributions to Harvard, while simultaneously meeting his demanding responsibilities as chief executive officer of the Gillette Company since 1975, during a difficult and challenging period for this multinational corporation. The current success of Gillette is a tribute to his

genius for steady and inspired leadership.

Born in St. Louis, Missouri, Colman left the Midwest to come to Harvard College in 1948 and remained in the Boston area his entire career. In addition to his service to the university, he was involved in numerous civic activities, including Simmons College (as chairman of the corporation), the Massachusetts General Hospital, the New England Medical Center, the Boston Museum of Fine Arts, the Boston Symphony Orchestra and the New England Conservatory of Music.

Colman was a big man, in body and in spirit. He was always intelligent and well-informed; he spoke succinctly and to the point. At a meeting of the National Campaign Committee, he explained to fellow members that the New Pathway is the attempt of the Harvard Medical School to explore new ways of learning medicine in the same sense as we hope our graduates will continue learning.

He had a wonderful and sometimes impish sense of humor, his face flushing and his eyes twinkling as he gave the punch line. He was a passionate reader of detective stories. He told me with delight about the dinner he had hosted in Rome for Pele during the World Cup matches last summer.

He was a man of his word, completely trustworthy. He was devout and always considerate of the needs of the persons around him. He is survived by his wife, Joanna, and their four children and three grandchildren, one of whom was born on the night of the inauguration of the campaign. We will all miss him. □

—Dean Daniel C. Tosteson '48



# BOOK MARKS

## In a Word

*ET CETERA, ET CETERA* by Lewis Thomas, Little, Brown and Company, 1990.

by Susan M. Okie

Lewis Thomas '37, the poet of the cell, here reveals another of his lifelong obsessions. This time it is not the beauty of slime molds or of Bach fugues that entrances him, but that of words—and not merely the music or the expressed meaning of words, but their family histories and secret relationships. In this, his fifth book of essays, Thomas makes a startling confession: on sleepless nights, he is likely to reach not for a cognac or a cell biology journal, but for *The American Heritage Dictionary* to look up the Indo-European root of a word such as “pessimism.”

His approach to the subject is, upon reflection, very much in line with his training as a pathologist. What delights him most is to ferret out shared origins for words that, on the surface, seem to have nothing in common. It's a bit as if he were to discover that two dissimilar cells found in different parts of the body actually arose from the same stem cell. Just as such a discovery might point to an unexpected biological connection, Thomas suggests that learning about the ancient roots of words can shed new light on their meanings, and can even give us hints about how languages develop.

He calls himself a collector of words, and indeed, reading this book is a bit like sitting with an avid naturalist bent on showing you case after case of brilliantly colored butterflies. He recalls that he began this hobby by making lists of what he called “interesting” words, but soon discovered that there were no uninteresting ones: “Every word, no exceptions, is an enchantment, a wonder, a marvel.”

And Thomas's enthusiasm is so pal-

pable, his writing so deft and elegant, that he makes you believe it. No subject could be better suited for punning, and in many of his brief chapters—with titles like “Nightmare, Murder, Ambrosia, etc.”—he plays while he teaches, lofting words like bright balloons and bounding them off each other. Even the book's title turns out to be a pun. *Et cetera* comes from the Indo-European *ke-etero*, or “this remains,” a translation that epitomizes Thomas's thesis that the words we use now, descendants of ancient roots, still contain remnants of the older, hidden meanings.

There are delicious examples on almost every page. “Scrutiny,” for instance, comes from *scruta*, a Latin word for trash, and that word, in turn, descends from the Indo-European *skreu*, to cut something up. (Related words include shrew, shroud and scruple.) Thus, the act of scrutiny, which today means close examination, has echoes of cutting things into small pieces and of sorting through trash heaps—a good description of the craft of investigative reporting.

A family of words about social organization are all derived by various paths, from the Indo-European root *kei*, meaning “to lie down; bed, couch, night's lodging, home, beloved, dear.” The words “civility” and “civilization” are descended from *kei*, by way of Latin; so, by other routes, are the English words home, hamlet, hide, haunt, and that most permanent of night's lodgings, cemetery.

The book's major drawback, I believe, is that it leaves the reader longing to know more. Thomas rushes headlong from word to word like the impassioned collector that he is, pointing out one strange specimen after another, then hurries you on to the next set of fascinating cognates. There is not much time to cogitate. One is left wondering, a bit giddily, how it all happened. How can one word metamorphose into another, and another, and another?

Thomas admits early on that he has steered clear of contemporary linguistics, and he offers only a few thoughts on this question—most of them in a couple of chapters in the middle of the book, which come as a refreshing change of pace from the bite-sized essays on individual words.

He suggests, for example, that many of the ancient roots may originally have been made up by children. Children, after all, are better than the rest of us at language, being biologically programmed to acquire speech and grammar and having brains that are still plastic, capable of wiring neurons into new circuits. In support of that idea, he cites the research of Derek Bickerton, who concluded that a brand new language called Hawaiian Creole that appeared in the Hawaiian Islands in the late nineteenth century was invented by the children of international immigrants working on the islands' plantations.

So much for the past. When he considers the future of language—and, inevitably, the future of the species that uses it—Thomas abandons his role as collector and resumes the optimistic, sometimes mystical voice familiar from his earlier books. In one fascinating essay, he suggests that the universal language of the future may be mathematics, if average human beings ever reach the point of becoming conversant with the discoveries made in that field in the last three centuries. In the closing chapter, he confesses his belief in the “Gaia” hypothesis—the view of the earth as an enormous organism, perhaps possessing a consciousness that is the sum of the awareness of all the creatures living upon it.

It's a fair distance, intellectually speaking, from the etymology of “fastidious” to the Gaia hypothesis, and it is a tribute to Thomas's agility as a thinker and writer that this book works as well as it does. Still, readers of *Et Cetera, Et Cetera* should be prepared for sudden curves in the road. I suggest that you keep your favorite dictionary handy, and be ready to switch the background music from the Goldberg Variations to the Paul Winter Consort at a moment's notice. □

Susan M. Okie '78 is a medical reporter on the national staff of The Washington Post. She is the co-author, with astronaut Sally Ride, of a children's book entitled *To Space and Back*.





A T R I B U T E T O

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WILLIAM BOSWORTH CASTLE

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# RECOLLECTIONS AT MEMORIAL CHURCH

September 12, 1990

We are gathered here to remember and to appreciate a great physician, scientist and teacher. But, perhaps most of all we remember Bill Castle as a friend, with whom we shared life's treasures and excitements, a secure friend when trouble loomed.

I first met Dr. Castle in 1934 when I was a medical student at McGill. As a visiting lecturer he told us about his then new and now world famous studies elucidating the etiology of pernicious anemia. We were awed as medical students and greatly stimulated by the originality and perspicacity of this young man's clinical investigations. Little did I know then that this great man would, in a few years, be my chief and, for nearly 50 years, my friend.

I can remember a host of stories, incidents and occasions relating to Dr. Castle; some humorous, as Dr. Castle had a robust sense of humor, and some more serious. I have chosen to mention just two.

Some years ago, perhaps near the dawn of the age of molecular biology, a few of you old-timers like myself may remember the dichotomy between clinical and basic investigation. This was a popular topic for discussions, sometimes heated. We often had these discussions around the lunch table in the Boston City Hospital house officers dining room.

In one of our many discussions we asked Dr. Castle how much we clinicians should be concerned about basic research. We asked him to let us have his viewpoint. He replied characteristically with these simple straightforward

words: "We should regard the study of the patient, including all aspects of his disease and of its relation to his physical and cultural environment, as the *basic investigation* appropriate for the physician."

Thus, he said, complete study of the patient was basic, and was our responsibility. This was the spirit of the Thorndike, which we followed and which helped to make the Boston City a great place to work and a major influence in American medicine—the com-



plete care and study of the patient.

The other occasion I will mention was only a few months ago, when I had the pleasure of paying a call on Louise and Bill at their home on Irving Street. In the course of conversation, I told Bill that I had been reading an exciting book by Curtis Smith called *Ancestral Voices* about such abstract concepts as language, the intellect and consciousness. We discussed these matters and various aspects of brain function for some time. Finally, Bill brought us back to earth when he commented that the great mystery to him was how intelligence could, as he put it, come from that "great glob of mush" up there, pointing to his head.

There you have a simple thought from one of the great thinkers of our time, for Bill Castle used *his* glob of mush to the fullest. He always expected the same from each of us. In his memory, I suggest that it is our continuing task and opportunity to use to the utmost the glob of mush *we* each are given, as he did. □

—Charles S. Davidson,  
William Bosworth Castle Professor  
of Medicine Emeritus

Like you, I am a friend of Bill Castle's. I say am, rather than was, because that friendship is very alive for me today, and will always remain so. Whatever Bill's personal belief about immortality, his memory in the hearts of his innumerable friends—friends of all ages, from all walks of life—will ensure immortality for him. I want my grandchildren to know him, as my children did—and, in a sense, they will because they will respond to the difference Bill Castle has made in me. And he made a difference in us all.

It is hard for me to think of Bill without smiling, remembering our first contact right through our last conversation, some five days before he left us. At that final meeting, we discussed mutual friends, polar explorations, global circumnavigation, and noxious vegetation on the Cape and the problems this created for early settlers. It was a typical Bill Castle conversation in that I came away full of new information and ideas, and feeling that this friend both cherished me and respected my opinion. And I had a lovely time! What a gift to give a visitor within a week of one's passing.

My friendship with Bill began un-



like any other I have. Because my husband had been the Castles' family doctor for many years, insofar as any physician can be accepted by another as his doctor, house calls seemed to be in order. These most often took place on Sunday mornings and seemed to me to be rather frequent for a couple of patients who were, by all reports, most vigorous and healthy. Perhaps Bill sensed this too, for one day he said to my husband, "Don't you have a wife?" and the DeFriez joint "house calls" began.

I remember well my first visit to the big, old, red house at 22 Irving Street. We passed through the gate, hospitably ajar, in the picket fence so patiently and optimistically repaired and re-repaired by its owner against the ravages wrought by small neighborhood boys on bicycles. We proceeded up the steps to the bell marked "Press Firmly." We did, of course, and a tall, smiling gentleman answered our ring and nimbly ushered us in.

Two things became quickly apparent. First, here was a couple to be reckoned with. Louise was the perfect complement to her husband, whose courtship (which I later learned was quite impetuous) resulted in a union so dynamic, and so mutually helpful, that it can serve as a model for us all. Louise and Bill will never be separate in my thoughts.

Second, it was impossible to get enough of these visits. They often lasted longer than the original "house calls," sometimes even including an impromptu and delicious lunch, served in that marvelous kitchen. The conversations began to be supplemented by a lively correspondence, often including articles, clippings and the like. The topics were legion, some serious and even heated at times, but more often heavily peppered with that wonderful Castle humor.

Bill the conversationalist and Bill the correspondent were of course supplemented by Bill the handyman. If something broke or wore out, the large blue Castle eyes sparkled with enthusiasm at this new challenge.

His masterpiece for me embodied many characteristics of Bill's. Our ancestral Cape Cod lighter fell apart and I threw it out. (Non-Cape Codders should understand that a Cape Cod lighter is a piece of porous stone soaked in kerosene, which helps start a fire.) Should I also toss out the still handsome, but now empty container?

Bill took the situation in hand immediately. On our next visit he presented me with a cunningly crafted



object fabricated from a fragment of old brick encased in a holder made from two wire coat hangers, whose ends were twisted in an ornamental four-leaf clover design. Hephaistos himself could have done no better.

That object symbolizes for me so much that I love about Bill. Its Cape Cod origins recall what an important part of his life the Cape was. It is a practical work, designed to kindle the fires of hospitality and promote good fellowship and conversation. It shows a skillful commitment to recycling—before many of us ever recycled anything. And that little ornamental touch at the top—this is a work of love, made for a friend, with original craftsmanship. Practicality, ingenuity, originality, love—doesn't that combination epitomize Bill's whole life? □

—Amey DeFriez

**L**ike all of you, and many others, I admired, respected and loved Bill Castle.

One historian, in appreciation of the courage and passion of researchers, has said, "My hero is man the discoverer." This describes Bill

Castle's hero, too. Bill knew the thrill of a major discovery and the frustration of a false lead. He was the consummate clinical investigator with a driving curiosity about the unknown. And he had a genuine concern for the needs of each person—whether patient, student, resident, research trainee or faculty colleague.

When historians write about the major advances in medicine in this century, Bill Castle will be noted as a central, giant personality. He made many significant, unique contributions to our knowledge of gastrointestinal physiology, pernicious anemia, and vitamin B-12. He discovered gastric intrinsic factor in a brilliant, classic series of clinical investigations. His work has benefited tens of thousands of people around the world.

Of course, Bill will be greatly missed. No more will we hear about him volunteering to fix a newly arrived research fellow's plumbing at home, as he did for Arnold Lear and his family; or see him magically repair a broken thermostat with a piece of cardboard and two rubber bands on a winter's night at the Boston City Hospital, as he did for intern Dick Streiff; or watch him work on his indestructible, near-antique automobile in the Boston City Hospital parking lot.

His toolbox was a fixture, and a symbol of his grit and determination in the challenging environment of the Boston City Hospital. Bill believed that the use of simple, unsophisticated laboratory equipment by all of us—his fellows-in-training—was essential for progress in medicine, because he wanted us to rely primarily on the strength of our ideas and creativity in our search for new knowledge and new perspectives. There are certainly many similar toolboxes around the world in the laboratories of his other former fellows.

We are all saddened by his loss, but today we celebrate his wonderful, productive and joyous life.

Louise, you were his pillar of strength and his anchor. You were his partner and his colleague as he successfully worked at the Boston City Hospital to build the Harvard medical unit and the Thorndike Memorial Laboratory into world class institutions.

Perhaps the greatest testament to his brilliance and influence is the fact that so many of his former students, residents and fellows have assumed positions of leadership in medicine around the world—as clinicians, researchers and teachers; directors of research institutes, laboratories and



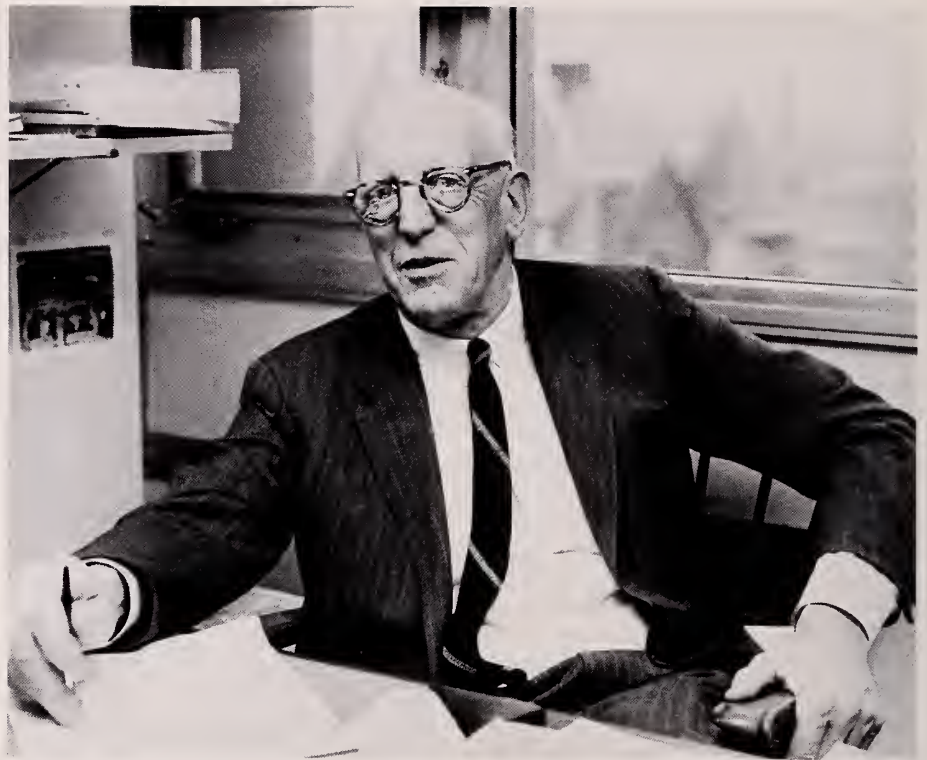
medical clinics; and as chairmen of departments of medicine, deans of medical schools, and editors of major scientific journals.

Each of us learned from Dr. Castle the importance of having compassion and understanding for our patients. We witnessed, and we learned, uncommon humility and a sense of wonder as we confronted the ever-expanding universe of medical knowledge. We developed a strong appreciation of, and a deep love for, the never-ending scientific quest.

Bill was a gentle giant, a renaissance physician, the quintessential clinical investigator and a role model for all of us. We are privileged to have known him and to have learned from him.

Thanks to God for Bill Castle, and for his many contributions. And thanks to you, too, Louise, Bill and Anne for sharing him so generously with all of us. □

—Louis W. Sullivan, U.S. Secretary of Health and Human Services



As I struggled to recapture some details of my father's private life that might be of interest to his friends and colleagues, I kept falling back on that hackneyed cop-out: "You had to be there." *There* was not always the easiest place to be for family members or even for my father himself, but it was always a unique environment.

Take that moment back in 1952 when my father was driving me to elementary school. Other children are being driven in shiny cars from the early '50s. We are sitting in the 1932 Model A Ford, or the army-green 1938 Plymouth—I can't remember which. The seats exhale an aroma of dust and engine oil (I think it was the Plymouth). As we stop at an intersection, a red-faced man with a protruding belly shuffles across the street in front of us. "Aha," my father exclaims, "He's carrying a liver." For the rest of the way to school, I heard a lecture on liver disease in alcoholism. To a 12-year-old, this was startling; for my father, infinitely natural.

The diagnostic mode was one of his favorite ways of confronting a potentially hostile world. It went beyond those alarming street-corner pronouncements (tabes, Parkinson's, locomotor ataxia!) to far more subtle judgments. He spotted Henry VIII as a luetic from looking at one contempo-

rary woodcut. After reading a few pages of *Portrait of the Artist as a Young Man*, he wanted to know if Joyce suffered from eye disease. "I thought so," he said. "There was all that emphasis on losing his glasses." Listening to the patient, he told my wife once, was the key to diagnosis.

It is impossible to exaggerate the extent to which my father's personal life was informed by his career as a physician. His old age and last illness were not only a source of pain, but a source of professional curiosity. My mother tells me that he spent a restless night not long before his death reciting, in his sleep, his symptoms, as if he had somehow missed the diagnosis.

His medical achievements are better known to many of you than they are to me. But, he did confide in me about a moment of great satisfaction in his medical career. It came during his 1931 trip to Puerto Rico with an associate named Dusty Rhodes. They thought they had found the cure for a serious tropical disease—sprue—but they had not put it to any clinical test.

The night they arrived in San Juan, tired from their long journey, they checked in at the hospital where they were to perform their clinical experiments. A patient on the ward there had sprue and was, as my father said, clearly "on the way out": semi-conscious and with only hours to live.

With nothing to lose, they ordered the treatment—some of you will know

better than I what it was—and retired for the night. The next morning, as they entered the ward they heard laughter. The dying man of the night before was sitting up in bed, eating breakfast and joking with the nurses. It was a magical moment for my father, even 40 years later.

His long lifespan—not the 94 years that his father lived, but close to it—is part of the story. My father was three years old when Queen Victoria died. He would have been in his teens, I think, when the *Salon des Independants* show in Paris ushered in the modern art that he so thoroughly disapproved of all his lifetime, and a young man when the logical positivists took the positive attitude toward science that he heartily adopted as his own. He was comfortable with steam power and the internal combustion engine—occasionally, on high holidays, he would fire up for my amusement the steam engine that he had constructed as a boy—but he was less at ease with electronics, and left the programming of the VCR to his grandchildren.

From the Victorians, I think, he acquired his lifelong fascination with the mechanical, and also certain virtues: rectitude, fidelity, moral authority. From his mother, a true daughter of the Kansas plains, he took a certain puritanical streak. He abhorred waste, idleness and ostentation.

I cannot help wondering how the man who kept the Walter Reed Medal



for Discoveries in Tropical Medicine in a drawer with his socks would have felt about this memorial service. "All this fuss," he would have exclaimed in genuine disgust. Although he was not a Thoreauvian—Thoreau irked him by misidentifying a few birds in his nature writing—he did mistrust all enterprises requiring new clothes. His own clothes were selected for thrift and durability. He bought his shoes from Sears and his shirts by mail from the New Process Company, crafted of the latest miracle fabric and guaranteed to wear like iron.

My father's conservatism and his Victorian obsession with mechanical improvements converged in about 1958, when he made a discovery that has gone unheralded outside the family. For some years he had been brooding over the inefficiency of the furnace at his home. Much of the heat went up the flue. Though oil was cheap, it galled him to think of all those calories shooting up to heaven. If only, somehow, the heat could be trapped.

Inspiration struck. He assembled a frame of steel bars, about eight feet on a side, and suspended within it about 100 linear feet of stove pipe which was connected to the furnace. The pipes flowed out of a big manifold and then back into a sort of collection chamber and then to the flue. When the furnace went on, a heat sensor, scavenged from an old coal furnace, triggered an electric light and a fan. The fan blew briskly, collecting waste heat from the stack gas and warming the basement.

For a single heating season, this device worked as planned. It is anticlimactic to say that the pipes choked with corrosion and required an annual disassembly and cleaning lasting 12 hours. And for those of you who knew my father, it is unnecessary to say that this amazing contraption was cleaned and disassembled annually for at least three years.

The other day I came across a tag hanging from a household appliance, marked in my father's hand, indicating that the bearings had been greased annually from the early 1970s to 1988, when failing health interrupted his routine. Now, his long quest for the truly durable has come to an end. But I like to think that his quirky, inquiring mind lives on, in his students and in those who knew him, and that somehow he continues the process of diagnostic inquiry. □

—William Rogers Castle

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# My Early Years

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by William B. Castle

My father, William Ernest Castle (1867–1962), was professor of zoology at Harvard and a pioneer in experimental mammalian genetics at the turn of the century. My mother, Clara Sears Bosworth (1870–1940), was a daughter of a farmer living near Wellsville, Kansas, whose wife insisted strongly on college education for their children. Clara graduated from the University of Kansas at Lawrence and married my father in 1896. In later years her considerable talents led to the production of amateur plays and interesting accounts of early life in Kansas. In 1897 I became the first-born of three sons: myself, Henry, who died while a second-year Harvard College student, and Edward, subsequently professor of physiology in Harvard College.

I was born at 10 Ash Street Place in Cambridge, Massachusetts in one of a few single-family houses with "back yards" situated on one side of that quiet "no thoroughfare." The other side was bordered by the lawns and gardens of the Greenleaf Estate, a good place for a child to learn to respect the prior rights of tolerant gardener Murphy and his floral borders.

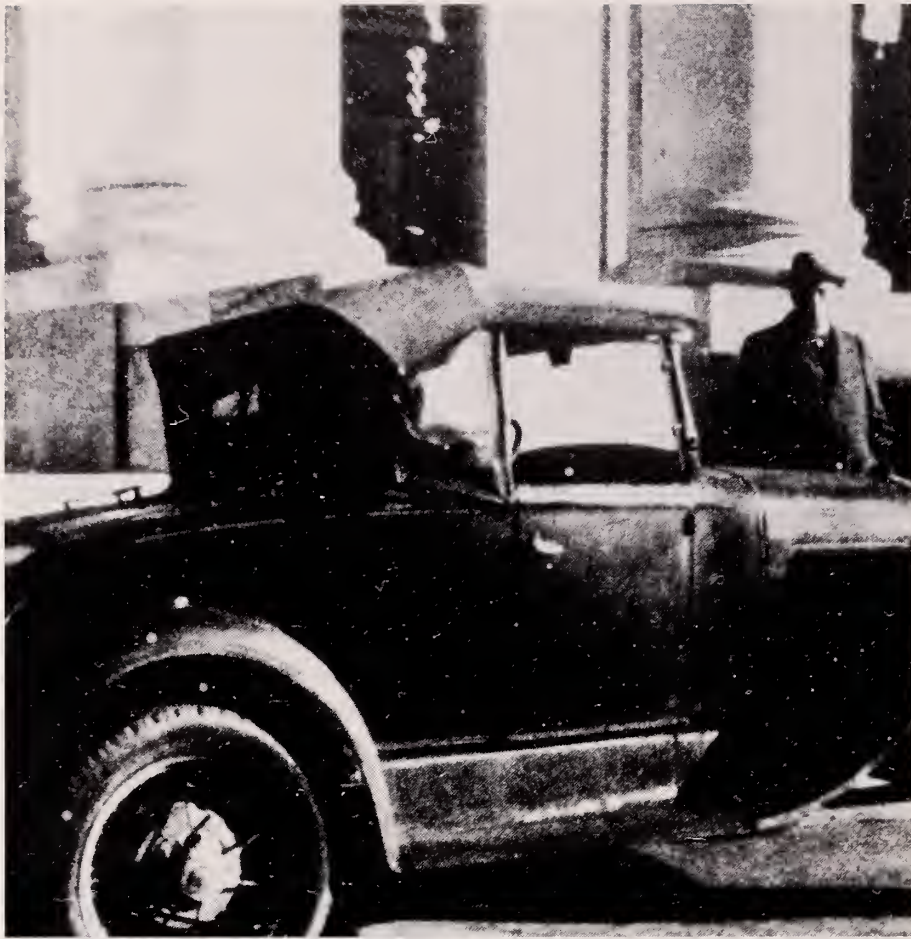
In 1907 the family, now of five, moved to a newly-built house at 186 Payson Road, Belmont, Massachusetts. Our dwelling had no near neighbors and overlooked a quarter mile



Castle at age 29.

away the extensive market-gardens, orchards and greenhouses of the Hittinger farm. With the friendly young Hittinger boy as our playmate, this offered the untutored learning experiences of a running brook. A shallow former ice pond, barn, blacksmith





Castle's famous "extrinsic tractor" Model A Ford, 1952.

shop, and once only, a paper wasp's nest.

My father now exhibited the knacks and interests of the farm boy that he had been by grafting fruit trees and cultivating a kitchen garden bordered by phlox and iris. Unlike his youngest son, Edward, I was little interested in my father's attention-demanding animal experiments as I grew up, or in his agricultural enjoyments. When in 1909 his animal work was transferred perforce to Harvard's Bussey Institute in another Boston suburb, Forest Hills, a tedious daily commuting trip became a necessity of his academic life.

Salvation came at last with the purchase of a 1915 Model T Ford, though not without its perils, as he was a slow learner at the wheel. I was at once interested in the machine and its "planetary transmission," and being young required no more than a few hundred yards of open road to learn how to drive and shortly to make elementary repairs. A subsequently purchased Model A Ford roadster of my own ran with few repairs from 1929 to 1953, the only factory-new car I ever owned. It achieved fame with medical students and hospital house staffs and

was loaned to at least two research fellows for their honeymoon travels.

In 1933 I married Louise Griffin Muller, a lovely music teacher from a suburb of Philadelphia, whose good nature and common sense often put me in mind of "the Lady from Philadelphia" of *The Peterkin Papers*. She had graduated from Westchester State College in 1929, and after our marriage we lived in Brookline, Massachusetts. There, through membership in the League of Women Voters, she became interested in public affairs to the extent that in 1960 she was elected by the voters to the Board of Selectmen, the first woman to achieve such membership in Brookline.

### Early Education

A pair of two-year experiences back to back in public schools in Cambridge and Belmont have left little impression other than sociological. There must have been reading, writing and arithmetic appropriate to the time. I remember, by contrast, the anarchy of class behavior when a substitute teacher was temporarily in charge of

boys and girls in the classroom, and the clear-cut pecking order of the boys' recess period in the playground.

In 1909 my father entered me in Browne and Nichols, a boy's preparatory school in Cambridge. Our teachers were now all men who presided in their own rooms to which we went when the bell rang. I learned required Latin and English and elective French. Also regrettably, a year of Greek rather than German. Plane geometry seemed a labored effort to prove the obvious, but algebra allowed the solution of practical problems that arithmetic did not, once the problem was clearly set forth. I yearned for the time in a final fourth year when I could learn elementary physics by simple classroom experiments.

I took no part in the school's regular athletic or rare social activities. Instead, with classmate Tom Cabot, I engaged in and survived after-school experiments with fuming acids, electric arcs and gun powder in his home. And, with Russell Cogswell, I tried to understand the working principles of wireless telegraphy and the practical construction of a simple crystal receiving set. I could never learn to read code. A friend of my mother's introduced me and my brothers to bird-watching around the fields and ponds near Belmont.

I entered Harvard College early in the month after the distant "Guns of August" in 1914 and for the first time lived away from home in Gore Hall, one of President Lowell's new freshman dormitories on the Charles. Meeting and making new friends from other schools and states was heady stuff. Nighttime "bull sessions," which I think explored subjects freely rather than merely to score debaters' points, were intellectually rewarding, at least to me.

I took courses in chemistry, biology and physics, including one on the nature of matter at a subatomic level. Lectures by Professor Kohler on inorganic chemistry were often related to industrial use, but I first heard of and saw the periodic table of the elements in his course. Far from its present completeness, it gave exciting evidence of a fundamental order in the universe. The experiments of Jacques Loeb with plants and animals seemed to obey the same laws of nature. The human politics of the World War was a shocking contrast.

During parts of summer vacations I took interesting month-long courses: Surveying at the Harvard Engineering Camp on Squam Lake, and Quantita-



tive Inorganic Chemistry in Professor T.W. Richards's laboratory. The problem assigned was to determine the atomic weight of sodium, a meticulous exercise for me in how not to spill salt in the process. I also worked in a shipyard in Bath, Maine helping to build "liberty ships" and spent July 1917 in Officer's Training Camp in Plattsburgh, New York.

When I entered Harvard Medical School in September of 1917, Robert Loeb, already a second-year student, opened the oak door between the marble columns and extended a hand of welcome. At the moment, I did not realize that here was the son of the great Jacques Loeb!

Shortly I was to find that the feat of memory required by gross anatomy

demanding less of other powers of the mind than had my college courses. I had never seen a corpse, but I instinctively tempered that shock by prompt and concentrated attention to the required ablutions with yellow soap and water. A year later came the great influenza epidemic, less fatal in the medical school than in the college, and the armistice that began the illusion of permanent peace.

By our third year we had bought stethoscopes and learned to thump the chests and palpate the enlarged organs of hospital ward patients. I read Osler's textbook of medicine and, like the Rev. Dr. Gates, found it excellent in its description of human diseases but disappointing in its limited scientific discussion of their causality and treat-

ment. To narrow that important discrepancy, the Rockefeller Institute and Hospital had been built.

Four years after receiving my MD degree in 1921, I was fortunate to be offered an appointment under Francis Peabody at the new Thorndike Memorial Laboratory of the Boston City Hospital. There was a novel opportunity to study the cause and cure of disease by scientific methods in selected patients, cared for in a special ward. For me it was the right time in the right place. The next year Minot and Murphy cured a fatal disease, pernicious anemia, by feeding raw calves liver. Why did it work?

## Avocations and Special Interests

As a child I was interested in paintings of nature and action, and copied in pencil Homer's "Fog Warning," featuring the big halibut in the dory. Later I tried other media but showed little artistic ability. I especially enjoyed J.S. Sargent's water colors, discovered Eakin's "The Agneau Clinic" hanging in an obscure stairway of the University of Pennsylvania Medical School, and viewed with delight examples of the French impressionists in Paris.

Without travelling farther than Kingston, Rhode Island, Gloucester, Massachusetts, and Mount Desert Island, Maine, I have seen three total eclipses of the sun. At the first, on a nearly windless morning, I noted the slow passage on the snowy ground of the then mysterious "shadow bands," and recognized that they were caused by local air temperature refractions enhanced by the almost linear (rather than circular) source of sunlight emitted during a few minutes both before and after totality. In 1910 I first saw Halley's Comet, far more visible to the naked eye than in 1986.

Unable to learn to swim for three summers in the cold breakers of Duxbury Beach, I learned in as many days during a visit to a school friend at Woods Hole. I have loved the south side of Cape Cod ever since for its warm water, good fishing and reliable onshore breezes for sailing small boats. True, there is the seasonal threat of hurricanes, of which our cottage on a tide river in East Falmouth has, I think, survived four since 1938. They are a mess to clear up after! □

*Autobiographical narrative by William Bosworth Castle, written per request of the National Academy of Sciences.*



*A family excursion*





WANDERJAHR, *The Education of a Surgeon*, Edward D. Churchill, *an edited and annotated account by J. Gordon Scannell '40 of EDC's Moseley Travelling Fellowship, 1926 to 1927*. Castle counted "Pete" Churchill among his closest friends when house officers together at the MGH; they remained lifelong friends, though their research, clinical, and departmental interests were quite separate.

—JGS

I was lunching one day with Bill Castle, who was then a house officer on the medical service. It was a memorable lunch, for out of the blue we decided to spend our summer vacation in Europe. Neither of us had been abroad. We concluded that the trip could be financed with a little parental assistance if we travelled on a small scale.

So we booked passage in the steerage of the Cunard liner *Aquitania*, and this turned out to be an experience in itself. On the eastward voyage the steerage was almost empty of passengers. Our cabin was a small one down in the bowels of the ship, but it had a porthole and we considered ourselves living in style for this class of accommodation. Every morning a steward drew baths for us in a distant room, which we reached by following a pipeline aft.

We were permitted to use deck chairs on the first class decks, but we found no one up there willing to talk to us. I suppose we looked or smelled out of place. Occasionally we escaped into the second class, where we found the Mallory brothers, Tracy and Kenneth. Tracy later became pathologist at the MGH, and Kenneth followed the same line of work at the Boston City Hospital. Bill Castle and I considered their second class accommodations much inferior to ours because they were stuffed into a four-berth inner cabin without a porthole.

The *Aquitania* put in first at Cherbourg and then at Southampton, where we disembarked. I shall never forget the thrill of looking out of the porthole into the morning mist, seeing a bell buoy, and realizing that we had finally reached our destination. Instead of taking the boat train to London, we did something that turned out to be much more interesting. For some reason or other the name "New Forest" appealed to us, and so we found ourselves en route to Salisbury. Here we put up at the White Hart, a small pub not far from Salisbury Cathedral.

I can conceive of no better intro-

# INTERNS ABROAD

by E.D. Churchill

*The following account of E.D. Churchill's 1923 trip abroad with Bill Castle is taken directly from Churchill's unpublished memoirs, based on interviews with Saul Benison in 1956 and designed to be part of an oral history program at Columbia University. Ed-*

*ited transcripts of these interviews were found among Churchill's papers, which were transferred to the Countway Library after his death in 1972. A freestanding segment of these "Memoirs" has recently been published by the Countway under the title,*

*Castle and Edward D. Churchill aboard the SS Antonia on their return voyage from Europe in the summer of 1923.*



duction to England than to walk through the English countryside and into the Salisbury Cathedral. The experience of sitting in the soft shadows of its nave, contemplating for the first time its Gothic arches and ancient tombs, with their prostrate stone figures of valiant knights, is still vivid in my memory. It is always recalled by Constable's painting of this cathedral.

Although I brought along a camera, Bill persuaded me to sketch with pencil and pad. Neither of us were good at drawing, but it became an excellent way of letting the environment soak in. We hired bicycles and pedaled down to the site of Old Sarum and then to Stonehenge. Here we sat and sketched. To make even a crude sketch of a scene etches it in the brain, so that the recall is permanent. Perhaps the making of color photographs may be a close second if time is taken in composition, but I can still see Stonehenge as vividly now as I did in 1923.

On the spur of the moment we decided to go down to Cornwall. On the way we stopped at Exeter to see its cathedral; and after noticing in the railway station a poster of the ruins of King Arthur's castle in Tintagel, we took the bus to that place. We sketched the ruins of the castle and visited the cave said to be that of Merlin.

We were completely on the loose, following our own whims on a voyage of discovery. We were schoolboys and school was out. Our tour was a minuscule *Wanderjahr*.

We did not go to Clovelly, a customary tourist attraction. When we reached the cliffs overlooking the sea, we caught our first glimpse of the chough and recognized this bird instantly. We descended to the lonely beach and went swimming in the nude among the breakers by the rocks. Then, heading for Dartmoor and the moorland, we worked our way through the old cathedral cities of Chester and Wells.

I believe it was in Wells that we found a tombstone with a carved chough and made a sketch of it. Only then did we think of turning toward London. Traveling for a time through the English countryside was a natural preparation for London, which we had chosen as if by intuition.

We found accommodations in a simple but completely English hotel (Thackeray) just across from the British Museum. We stayed here only a day or so, and then took the train to Edinburgh, our purpose being to see the Robert L. Stevenson country. I had a letter of introduction from Mrs. Lo-

throp of Boston to her relatives, the Balfours of Markinch near Edinburgh. A letter, which I then addressed to the Balfours, was answered by a ready invitation for Bill and me to call. Our visit to this country estate in Scotland one pleasant afternoon was rewarding, for it was our first look inside a European private house.

We were not thrilled by the city of Edinburgh, but were impressed by the mile-long bridge across the Firth of Forth. We went down the coast a bit and climbed an elevation known as the Law, which gave us a view of Stevenson's countryside. We didn't get into the loch or mountain regions. On a rainy and misty day we visited Abbotsford to see Walter Scott's home and Tintern Abbey.

When we were back in London, the weather had turned warm. Although there were many sights to attract tourists, we concentrated on doing a thorough job on the National Gallery. I have never regretted this introduction to the graphic arts. Of course, I had visited the Art Institute of Chicago and the Metropolitan Museum in New York, but not systematically. We bought descriptive catalogues and proceeded studiously through the various schools of painting in the National Gallery. For this purpose there is no other collection that surpasses it. We were thrilled by it all, particularly the early Flemish and Dutch schools.

Of course, there was too much to be absorbed within a short stay, but since that time I have always revisited the National Gallery with the feeling that it was a collection of friends I've known all my life. The collection has been rearranged, but nevertheless the visual memory obtained within a few hours at the National Gallery remains perhaps more vivid than what many students acquire in a semester course in art appreciation. I got a great kick out of taking my family there two summers ago.

Bill and I liked the paintings by Constable. We learned one interesting item about his composition: one could take a typical Constable canvas and cut it up into say three parts, each of which would be a satisfactory composition by itself. His paintings are mosaics. The works of Turner did not appeal to me, even when supplemented by a visit to the Tate collection. The early Flemish and Dutch schools made the greatest impression. Perhaps this was because I became saturated with them when we visited Belgium and Holland.

We sampled the other sights of London at a leisurely pace. We visited the zoo, and on this occasion we decided to learn about wine as a mealtime delicacy. Knowing little about wines but being unwilling to display our ignorance, we ordered a half bottle of Madeira—rather a heady wine for a midday lunch on a warm summer day! After our repast we sat on a bench in front of the bear cage and dozed off. Such was the inexperience and unsophistication of two young doctors in 1923, and I doubt that we were unique in this respect among our colleagues in Boston.

We found an eating place near St. Paul's, a tiny grill in a locality that was almost completely demolished by German bombs in World War II. A grilled mutton chop with half a tomato cost only a shilling or so. We learned in our tripping around England to beware of "temperance hotels"—not because they served no liquor, but because life was austere therein and they were inclined to be seedy and dirty.

Our trip was not a professionally-oriented excursion. I carried with me a letter of introduction from Dr. Porter to Mr. Thompson-Walker, a surgeon in London. Upon presenting this letter, I was invited to watch him operate one morning. A similar letter was addressed to Sir Harold Stiles in Edinburgh, but when I called he was away. We visited the physiological laboratory of Sharpey-Schaffer in Edinburgh, and stopped at Oxford University. This was a real educational experience. Other than these few contacts, we escaped from the professional world.

I use the word "escape" as though we were running away from something. In retrospect, the failure to budget some portion of our vacation time to getting a taste of European science when we had the opportunity was due in part to the anti-scientific attitude fostered by the times. We were not aware that we could profit by dividing our time between vocational, professional and cultural undertakings. The universal language of biological science had not yet penetrated the clinically oriented routine of the Harvard-MGH area, at least to the extent of gravitating to our level.

Dr. Porter was the only clinician who guided me toward some professional contacts on my European trip. Three years later, my stay in England on a Moseley Fellowship was of quite a different order. Today, far greater efforts are made in behalf of traveling students and residents.

The International Society of Sur-



gery was meeting in London while we were there. I accompanied Dr. Balch to one of its sessions and heard the Scottish surgeon McEwen read a long paper describing his studies of the blood supply to growing deer antlers. As the remainder of the proceedings appeared dull, I attended no more sessions.

We left London in the company of the Mallorys, and crossed the North Sea to the Continent via the Hook of Holland. We enjoyed Amsterdam, took the conventional excursion around the island of Walcheren, and visited the cheese works at Edam. We sketched a bit along the canals, investigated the windmills, and swam in the North Sea at Schevening. In Belgium we liked Bruges, with its open-air cafes in the square and the carillon concert in the evening. We sketched the little bridge that is such a familiar subject for amateur artists.

In the Low Countries we spent quite a bit of time in the museums. Having had our introduction to Frans Hals at the National Gallery of London, we were particularly interested in the collection of his paintings at Haarlem. At that time I thought Hals the most superb portrait painter of all time, and especially admired "The Night Watch." I liked Hals better than Rembrandt.

Paris was a great new experience. We did the conventional things: viewing the city from the Eiffel Tower, strolling among the book stalls along the Seine, taking coffee at the Cafe de la Paix. We visited the Louvre particularly to gaze on the Winged Victory, flanked by the Botticelli frescoes—and, of course, saw the Mona Lisa.

We attended the Folies Bergere, and then decided to do something unconventional for doctors—we would round off our medical education by a tour of a house of prostitution. While it was a familiar legend at the Harvard Medical School that Dr. Oliver Wendell Holmes had taken a nephew to a bawdy house, with the remark that he "enjoyed the enthusiastic co-operation of prostitutes more than the dignified acquiescence of your Aunt Julia," our experiences as doctors in the MGH clinic for venereal disease had rendered us immune to temptation.

There was no lack of pimps and runners to present young American males with cards indicating where the brothel life of Paris could be found. The techniques of seducement were ingenious, and these were displayed with increasing intensity as our resistance was sensed; but united we stood. Our defense required a constant flow

of francs, but we had set aside an adequate sum to placate any show of overt hostility. And so we saw the bedroom of mirrors, the stirrup table attributed to King Edward VII, the cinema film, the papier mache models and leather devices, and many other goings-on.

When it was time to leave Paris and head for home, I was clutching a bird cage that contained a bullfinch found in the bird market. Unhappily he died and was buried at sea. And so we were returning to our duties at the MGH

convinced that our few weeks in Europe had been a great educational experience. I am also convinced that youths must ever be allowed to make a voyage of discovery on their own responsibility. If I had been led by my parents to the National Gallery, for instance, it might not have meant anything to me now. □

*Edward D. Churchill '20 (1895-1972) was John Homans Professor of Surgery and chief of surgical services at MGH.*

# The Head of the Table

by David G. Nathan

**T**he career of the late William B. Castle, George Richards Minot Professor of Medicine, *Emeritus*, and Francis Weld Peabody Faculty Professor, *Emeritus*, is an inspiration to his students and to clinical investigators throughout the world.

Following his early education in Cambridge, William Castle was inclined toward a career in medicine. The quotes in this article are from an interview the author had with Castle in 1987. Much of the text of this article will be published in a forthcoming issue of the *Journal for the American Philosophical Society*.

At Harvard College Castle had been thrilled by his studies in chemistry, particularly by the periodic table, which presented clear evidence of an order in the universe. In college, he also learned that biological systems were ordered as well.

He contrasted those scientific disciplines to the chaos of impending World War I. During the war he helped build Liberty Ships in Bath, Maine. The tragedy of the war finally impelled him

into a career in medicine because he felt that in medicine, "Nature, not man, is the adversary." Furthermore, in his usual self-deprecating way, he concluded that he was not bright enough to be a chemist or a biologist at Harvard.

At Harvard Medical School the major faculty figures when Castle entered with the Class of 1921 were Lawrence J. Henderson, Cecil Drinker, Walter B. Cannon, Hans Zinsser, Otto Folin and David Edsell. The latter became interested in the possibility of establishing a Harvard service at Boston City Hospital and influenced Francis Weld Peabody, then of the Peter Bent Brigham Hospital, to take the leadership of that new program.

Peabody had gone abroad for study with Emil Fischer and August Krogh, and returned to begin a career in clinical investigation. He started at the Rockefeller University Hospital and tried to transfer the Rockefeller concept of clinical investigation to the Peter Bent Brigham Hospital. The latter was not, however, well set up for what Peabody wished to accomplish, and Edsell persuaded him to move to



the Thorndike Laboratory of the Boston City Hospital's Harvard service.

In some ways, the Thorndike was also the creature of Richard Cabot, founder of the Massachusetts General Hospital clinical pathologic conferences that bear his name. Cabot had persuaded the Boston City Hospital trustees that they needed a strong scientific enterprise if the hospital were to compete as a teaching hospital with the Peter Bent Brigham and the Massachusetts General hospitals. As a result of Cabot's concept and Edsell's successful recruitment, Peabody became the first full-time clinical scientist at Harvard.

Peabody's essays on clinical investigation, including "The Doctor and the Patient" and "The Care of the Patient," made an enormous impact on Castle. They remained abiding influences on him and on many clinical investigators ever since their publication.

In his second year at HMS, Castle failed the course in laboratory diagnosis because he could not reproduce enumeration of red cells on the two sides of a counting chamber. Peabody was assigned the task of giving him a make-up examination. Realizing that Castle would do no better with that arcane technique, Peabody quizzed him on his knowledge of the anemias.

Castle's answers were obviously impressive, and Peabody did not forget him.

Castle went on to his house staff training at the MGH following graduation from medical school. As an intern, he worked in the outpatient department and helped to run the rather primitive clinical laboratory. In the next year he began to be responsible for patients and attend ward rounds.

Following his residency, Castle decided to try a career in basic science, so he joined Walter B. Cannon's Department of Physiology. He was assigned to Cecil Drinker's laboratory at the Harvard School of Public Health, where he began to work with Harold Himwich on muscle metabolism. Castle and Himwich carried out painstaking studies of the dog gastrocnemius muscle respiratory quotient *in vivo*. From this experience, Castle learned that experimental work is hard and fraught with failures. "Serious determination is required if one is to be successful," he said.

Castle also realized that he wanted to return to clinical medicine, but in this he was thwarted. In those days, professors in clinical departments were private practitioners who made their living at offices in Boston and made

rounds in the hospital. It was impossible to be paid for a laboratory career. (Indeed, Zinsser held that it was the duty of rich Boston heiresses to marry impecunious HMS assistant professors in order to support them in their work.) For awhile, Castle considered a position in the Department of Physiology at Rochester University, but his desire to work with patients made it clear to him that he must somehow find a way to join a clinical department.

At that point, Francis Weld Peabody was reminded by Castle's friend Joseph Wearn that Castle was looking for a job and Peabody, remembering the bright second-year student, offered him a junior position. When in 1925 Castle told Walter B. Cannon that he was leaving the Department of Physiology to go to Boston City Hospital, Cannon's only response was, "Ah, another brand for the burning." With that lugubrious prophecy, Castle went on to the BCH and the Thorndike Memorial Laboratory for his illustrious career.

Francis Peabody died in 1927. He was succeeded by George Richards Minot, an internist with a private practice in the Back Bay section of Boston. Six years later Minot received the



The second and fourth medical services, 1951 to 1952, in front of the Thorndike Laboratory.





*Maxwell Finland and Castle, 1965*

Nobel Prize for the liver treatment of pernicious anemia. The appointment of Minot as director of the Thorndike Laboratory and chief of the Harvard service was fortunate for Castle, whose interest in hematology, and specifically in the influence of vitamins on hematopoiesis, was already profound.

As a second-year student he had heard E.V. McCollum's lecture on fat soluble vitamin A and water soluble vitamin B complex in food. The lecture fascinated him. Here were therapeutic agents that could be effective in tiny amounts. In the same year he also heard about pernicious anemia from Samuel A. Levine, who had taught him that patients with pernicious anemia lack gastric acid. Then in 1926, Minot and Murphy performed their classic experiment, in which they fed raw liver to pernicious anemia patients and induced a reticulocyte response.

In his simple and direct way, Castle reasoned that since normal individuals do not require liver extract, the problem in pernicious anemia might be due to a deficiency in the patient's gastric juice, which prevented the formation of an active substance. He began to feed beefsteak to pernicious anemia patients, and they did not develop a reticulocyte response. But, when he added normal gastric juice (which he obtained by intubating himself nearly every morning), they responded with reticulocyte counts of 6 percent and higher. The activity in gastric juice was heat labile, and he called it "intrinsic factor" to contrast it with the activity in liver, which he called "extrinsic factor."

"That," he pointed out, "was the first thing that ever worked for me," and gave him the highest moment of professional pleasure in his career. Other than the discovery of the vitamins and insulin, this was the first definition of a molecular basis of disease.

It may be difficult for clinical investigators of today to understand or appreciate what conditions were like in the 1920s when Castle arrived at the Thorndike ward and laboratory. The ward was a relatively comfortable research unit in a busy city hospital. Patients were glad to be there, particularly in the winter to get warm and to be cared for by, as Castle said, "young men, who, though interested in their work, did not forget that the patient was the object of their scientific and humanitarian concern."

Research support was based on a \$40,000 budget from HMS and an uncertain budget from the city of Boston for the salaries of junior faculty members, a few technicians and nurses. Castle's starting salary was \$2,500 a year, and only a bit higher when he became an assistant professor. But, the work on pernicious anemia made him world famous and that, together with his successful treatment of tropical sprue with parenteral liver extract, made his towering research reputation.

In 1936, while an associate professor of medicine, Castle traveled to England to be a potential candidate for the Nuffield Chair in Medicine at Oxford, but he declined the appointment when he saw that each bed in the Nuffield unit had a private doctor's

name on it. He knew he could never do his work in such a setting. In 1937 he became a professor of medicine at HMS and the director of the Thorndike Laboratory. "I was pretty famous, I suppose, at that time," he said.

Castle was never a willing administrator and considered himself very fortunate in having as colleagues Max Finland, who was in charge of financial affairs, and Charles Davidson, who was in charge of the service, while he focused his effort on the training of research-minded hematologists. The three of them met at noon once a week to discuss policy.

Castle had gone into hematology in the beginning he said, "because you could count something." The principle of an active drug that could totally correct an illness such as pernicious anemia fascinated him. White cell diseases and platelet disorders were less satisfying because there were too few data to work with them. But Boston City Hospital was filled with patients with various forms of anemia, and with his students he began to study them. The list of those students is a compendium of American hematology. They include Thomas Hale Ham, John Harris '44, Robert Schilling, James Jandl '49 and many, many others who, in turn, trained another generation of hematologists. They are the lasting legacy of the Castle years.

With it all, there was the famous Castle humor, often self-deprecating, always uproariously funny. And there was the kind attention to those who were struggling to begin. I will never forget my first meeting of the American Society of Hematology in Montreal. I knew no one except Castle, who had taught me third-year medicine. I still remember his large hands gently holding a patient. As I talked to him at the reception, I realized that he was not going to leave my side until he was certain that I found someone else to talk to. I had to lie to tell him that I saw my friends on the other side of the room. Then he released me and joined his many students and colleagues.

At that same meeting Castle chaired a plenary session on the megaloblastic anemias, an occasion that provided a public display of the uproarious Castle humor. A particularly loquacious speaker rambled on and on and went way over time. As the red light flashed interminably, Castle tapped his pencil gently on the desk. There was no response from the speaker, who drew breath for several more interminable slides.

Finally, Castle rose to stand next to



him. The speaker turned and stated, "I see Dr. Castle is getting itchy—I'll try to summarize." The brashness brought a slight gasp from the audience. Finally he concluded. Castle went to the microphone and in that wonderful, laconic tone answered, "Well, Dr.—, I might have been getting itchy, but I didn't scratch." The laughter was deafening.

During my career in hematology, first at the then Peter Bent Brigham Hospital and now permanently at the Children's Hospital, I had many opportunities to discuss my research with Castle. I was constantly amazed at his capacity to analyze and understand new facts based on pathophysiologic principles.

One day in 1970 I gave a small conference at the West Roxbury VA Hospital on our newly discovered findings on a disease Castle had neither seen nor heard of—chronic granulomatous disease of childhood. My colleague Robert Baehner and I had discovered that the granulocytes of these patients fail to kill certain microorganisms and cannot generate hydrogen peroxide.

Castle listened carefully and then asked me a simple question; "If granulocytes normally make hydrogen peroxide during infection, then isn't this why G6PD-deficient red cells hemolyze during infection?" He continued, "Perhaps, granulocytes of chronic granulomatous disease patients might not damage G6PD deficient erythrocytes."

I slowly walked out of the hospital with him, asking him to repeat what he had said. On the steps, we agreed on some experiments to test his hypothesis, and I returned to the lab. Of course he was right, and the paper entitled "Oxidant Injury of Caucasian Glucose-6-phosphate dehydrogenase-deficient Red Blood Cells by Phagocytosing Leukocytes during Infection" by R.L. Baehner, D.G. Nathan and W.B. Castle, is Castle's last in the *Journal of Clinical Investigation*. This was just another example of his extraordinary insight into the mechanisms of normal function and disease.

William Castle's life represents the very best of academic medicine. As a colleague once said, "Where Dr. Castle sits is the head of the table." All of us who were privileged to know him miss him keenly. He established our standards. We must maintain them in his memory. □

*David G. Nathan '55 is HMS Robert A. Stranahan Professor of Pediatrics, and physician-in-chief at Children's Hospital.*

# CURIOSITY FOR ALL THINGS ERYTHROCYTIC

by H. Franklin Bunn



When William B. Castle embarked on a career in academic medicine in the 1920s, no premium was placed on specialization. Indeed, one of Castle's pervading strengths was his penchant to view diseases within the totality of human biology. Nevertheless, he gravitated to the study of blood, probably because specimens

were so readily available and because reasonably accurate measurements could be made. Investigation of red cell disorders had special appeal because the consequences of anemia could be understood within the context of the large body of information extant on cardio-respiratory physiology and the role of hemoglobin as the transporter of oxygen.

The grand unifying theme in Castle's early work was the role of nutrition in maintenance of red cell production. As described by others in this issue, Castle was the solo pilot in his discovery of intrinsic factor and its importance in the pathogenesis of pernicious anemia. Subsequent field studies in Puerto Rico culminated in the demonstration that tropical megaloblastic anemia (tropical sprue) was due to "intestinal impermeability" and that it could be cured with injections of crude liver extract, subsequently shown to be a rich source of both folic acid and vitamin B12.

A pivotal byproduct of this endeavor was the demystification of hookworm anemia, the prevalence and severity of which posed an important public health menace. Castle realized that the purging of parasites provided only a temporary benefit, and he showed that iron therapy (along with the provision of shoes!) was the only



effective way of rehabilitating afflicted patients. Subsequently, in collaboration with Clark Heath '26 and Maurice Strauss, Castle provided convincing evidence that stoichiometric amounts of this element were required to correct the hemoglobin deficit in iron deficiency anemia, in keeping with the incorporation of an atom of iron into each of the four heme groups of new hemoglobin molecules.

William Castle's name and fame are so inextricably linked with nutritional anemias that many fail to appreciate that he made contributions in sickle cell anemia of comparable originality and scope. In 1945, he capitalized on a leisurely train ride to inform Linus Pauling about the clinical and laboratory manifestations of this disease. Upon learning from Castle that deoxygenation imposed a change in red cell shape as well as birefringence, Pauling's chemical judgment told him that hemoglobin must be the culprit. Pauling's assistant, Harvey Itano, elegantly verified this prediction by means of a newly developed technique, moving boundary electrophoresis.

Subsequently, Castle and his valued technician, Geneva Daland, developed a simple lab test for demonstrating the presence of sickle hemoglobin. His unfailing intuition told him that as cells sickle they must lose their natural pliability and thereby threaten to ob-



*A typical Boston City Hospital ward.*

struct capillary blood flow. His early enunciation of the "vicious viscous sickle cycle," anticipating decades of rigorous biophysical and rheological documentation, was crucial for understanding the vaso-occlusive manifestations of this disease.

At the Thorndike Memorial Labo-

ratory, Castle founded a school of erythrocyte pathophysiology—unique not only because it antedated and anticipated similar efforts elsewhere, but because the creativity and productivity of this group provided such a remarkable breadth and depth of understanding. By dint of his curiosity, intellect and charisma, he attracted to his "academy" the best young investigators in experimental hematology. Yet, because of his magnanimity and humility, his roles as coach, quarterback and ball carrier were not always clearly documented. He transplanted his infatuation with the megaloblastic anemias to a cadre of gifted post-doctoral fellows, leading to a rich harvest, including Robert Schilling's development of a quantitative measurement of radio-labeled vitamin B12 absorption (the Schilling test, in continued use worldwide), and Victor Herbert's all-encompassing work on folic acid and vitamin B12 metabolism and biochemistry.

Castle's interest in the birth of red cells prompted his appreciation and encouragement of Allan Erslev's pioneering work on erythropoietin. His evenhanded interest in the death of red blood cells led to in-depth inquiries into the pathogenesis of the hemolytic anemias. With Charles Emerson '37, he showed that in hereditary spherocytosis, red cells are adversely conditioned by the spleen.

In pursuit of Castle's observation that in patients with paroxysmal noc-



*Rounds with Castle on Peabody 1, 1956.*



turnal hemoglobinuria, more hemoglobin was excreted when the urine was acidic. Hale Ham developed the acid hemolysis (Ham) test, which provided the first insights into the role of complement in the rare but heuristics disorder. John Harris '44, imbued with Castle's infatuation with sickle cell disease, discovered the presence of liquid crystals within deoxygenated sickle red cells.

In a fitting climax to Castle's term of mentorship, James Jandl '49 eagerly assimilated Castle's insatiable curiosity for all things erythrocytic, and made extraordinarily original and definitive discoveries on topics as diverse as nutritional anemias, iron metabolism, hereditary spherocytosis, oxidative hemolysis, immune hemolysis and reticuloendothelial clearance.

After he retired as director of the Thorndike in 1964, Castle remained an active participant in the hematology unit. By means of meticulously crafted hand-written notes, he continued a lively dialogue with former fellows and colleagues. He took great interest in the problems and progress of a whole new cohort of research fellows, who were understandably attracted to this special place. He held court in the rather Spartan doctors' lunch room. There was mutual enjoyment in any turn of the conversation that piqued his interest in nature in its broadest scope.

Friday afternoon hematology rounds were a heady experience for the young trainee. Castle shared the stage with Jandl and, in later years, with Jane DesForges. Even the most routine case was enlivened by insights, speculation and challenge, often leading to a new experiment.

One of my most cherished memories of Castle was his willingness—no, eagerness—at age 88, to come to one of our lab group meetings to hear Mark Goldberg '80, then a research fellow, describe his recent work on erythropoietin. To nobody's surprise, his comments were characteristically penetrating and insightful. I believe that this was the last scientific meeting he attended at Harvard Medical School.

Castle's personal example and his contributions to medical science and to developing bioscientists are legacies that will remain vividly imprinted in the memories of those lucky enough to have known him. □

*H. Franklin Bunn, MD is professor of medicine and research director of the hematology division at Brigham and Women's Hospital.*

# A Society In His Name

by Stephen H. Robinson

**I**n the summer of 1987, the newly appointed masters of the five academic societies who were to be inaugurated that September joined in a dean's retreat in New Hampshire to lay plans for the new society structure at Harvard Medical School. Over lunch, the naming of the new societies became the subject of discussion.

The Oliver Wendell Holmes Society, then under the stewardship of Dan Goodenough, MD had already been in place for two years as the vehicle for a small cohort of students in the experimental New Pathway curriculum. Stephen Krane, MD was to be master of the Walter B. Cannon Society and Ron Arky, MD of the Francis W. Peabody Society. These names were car-

ried over from the earlier "dinner societies," which were comprised of groups of students and faculty that met for dinner and a talk a few times each year. The HST Society under the leadership of Richard Kitz, MD and Roger Mark '65 was to remain unnamed for the time being.

Thus, a name was required only for the fifth academic society, of which I would be master.

Both Ron Arky and I had worked in the Harvard Medical Service of the Boston City Hospital. I had been a house officer there and had spent several months doing research in the Thorndike Memorial Laboratory. Ron had been a fellow and later head of the metabolism section for several years.



*William and Louise Castle meet with members of the Castle Society, (left to right) Laura Rosen '92, Judith Holzendorf, society administrator, Joshua Gundersheimer '91 and Stephen H. Robinson '58, society master.*



Both of us knew Castle. The idea of naming the new society after him arose, I think, simultaneously on both our parts, and I suspect that it was also in the minds of several others who were sitting around the table.

Castle was then in his 90th year and, although somewhat fragile, he was as vigorous as ever intellectually and spiritually. Was it appropriate to name a society after someone who was still living? There was no dissent around the table. Like Cannon, Holmes and Peabody, Castle embodied the principles of physicianship and humane inquiry that were the goals of the new curriculum and academic society format at HMS. It was in this way that I acceded to the mastership of the William B. Castle Society.



Castle, Dean Daniel Tosteson and Julie Tucker '91 talk in the MEC on a visit by Castle to the Castle Society.

Castle's response when I told him of the new society that was to be named after him was characteristic. First, he said that he did not know why we wanted to name a society after him, but that he was very honored and pleased nevertheless. Then he wanted a detailed explanation of what these new societies were all about and what they were supposed to accomplish.

I told him about the idea of having relatively small communities of students and faculty working together and communicating with one another during the students' four years of medical education. And I told him—as if he did not already know—about the New Pathway and the greater independence with which students would be learning science and clinical medicine. Again Castle said how honored and pleased he was and asked me to be sure to keep

him informed about how the Castle Society was getting on.

I invited him to come down and take a look, see the new Medical Education Center and the teaching rooms and offices of the Castle Society, and meet some Castle students. Castle protested that he did not want to make a state visit. Moreover, he said that he was having some trouble walking but would let me know when he might be able to make it.

Castle was to make just one visit to the William B. Castle Society. It was in the spring of 1988. Castle's claudication had improved to the extent that he could walk a short distance, albeit slowly. I picked Dr. and Mrs. Castle up at their home in Brookline in the afternoon. The visit was to consist of a brief

tour and an informal tea with Dan Tosteson. There was to be “no fanfare,” according to Castle's prescription.

However, knowing Castle, I thought that he might enjoy meeting a few students casually. Thus, my administrative assistant, Judith Holzendorf, let it be known to some Castle students that Dr. and Mrs. Castle would be visiting the society that afternoon. Several students showed up, and I was pleased that we had resorted to this subterfuge. The students were clearly delighted to meet Dr. and Mrs. Castle and to have this opportunity to talk with them informally. Castle readily mustered his characteristic interest and wit, and began inquiring into their lives, what they were learning, and how the new societies and curriculum were working out.

One of the students, Julie Tucker

'91, an engaging young woman with dark red hair, excused herself early because she had an appointment with the hairdresser. Chivalrous always, Castle remarked on Julie's beautiful hair. Later, as tea with the dean was ending, Julie returned with a small box, which she presented to Castle. He opened it and discovered, with expressions of great pleasure, some locks of red hair. A delightful minuet had been enacted between a courtly nonagenarian and a bright young student.

We later tried several times to get Dr. and Mrs. Castle back to the Castle Society to see his newly hung portrait and to meet more students. However, the weather or his health did not permit it. I spoke to Castle several times on the telephone, calls often initiated by him, telling him how the Castle Society was developing and how much the students wanted to meet him, even though they understood the reasons that he had to stay away.

Frequently, Castle would interject that he continued to feel honored by the tribute of having a society in his name and he was kind enough to add that the society could not be run by a better fellow. I know that he would have said as much to another master of the Castle Society, but would like to think that his approbation was based, to some extent, on a friendship that went back many years.

During these conversations, Castle would often bring up a subject pertaining to his scientific curiosity. “Steve,” he might say, “did you read that article about (such-and-such) in the last issue of *Science*? I am puzzled about a few things . . .” The things about which he was puzzled were usually molecular in nature and often, to my regret, I had not read the article or was not able to explicate it to his satisfaction. My last conversation with him was very much along these lines, and took place only a few weeks before he died.

Now, sadly, all four of the named academic societies at Harvard carry the names of august Harvard medical men who are deceased. However, I and some of my students are privileged to have known the man for whom our society is named and to have experienced personally his qualities of inquiry, intellectual humility and engagement. We shall miss him. □

*Stephen H. Robinson '58 is master of the William B. Castle Society, the George C. Reisman Professor of Medicine, and is chief of hematology and associate chief of medicine at Beth Israel Hospital.*





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# CENTENNIAL

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## OF THE

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# HARVARD MEDICAL ALUMNI ASSOCIATION

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## FROM THE BEGINNING\*

by Nora N. Nercessian

**F**rom the beginning of the Harvard Medical School's history, its graduates had actively, if not intensely, been involved in all aspects of the school. As a body, graduates had governed the school's education and finances. But it was not until 1890 that a meeting was formally held, and a decision was passed to found the Harvard Medical Alumni Association.

On November 26, 1890 a group of Harvard Medical School graduates convened at the Boston Medical Library. The "Meeting of Gentleman," as

Dorothy Murphy was to describe it years later, was called by one James R. Chadwick, Class of 1871, who had an interest in forming an alumni association. The vote to form the Association was unanimous. The meeting elected Amos H. Johnson, Class of 1865, of Salem, and Robert W. Lovett, Class of 1885, of Boston, as temporary chairman and secretary, respectively.

Within the next five months, a Committee of Five on Organization had prepared a constitution. They presented it to the membership on April 30, 1891, and it was accepted with only

minor changes. The Articles of the Constitution, 10 *in toto*, presented the aims of the Association and established some regulations. Article II read:

The objects of this Association shall be to advance the cause of medical education, to promote the interests and increase the usefulness of the Harvard Medical School, and to promote acquaintance and good fellowship among the members of the Association.

The first meeting of the councillors was held at the Boston Medical Library on May 7, 1891. Present were the chair-

*\*This article is adapted from chapter one of "In Celebration of Life: A Centennial Account of the Harvard Medical Alumni Association 1891-1991," by Nora N. Nercessian, PhD, currently in press. The full history will be available in May 1991.*

man, treasurer, secretary and nine councillors. It was unanimously voted that a quorum of the council should consist of eight members and a quorum of the Association should consist of fifteen members. An executive committee was elected, comprising a president, treasurer, secretary and two councillors.

A second meeting of the councillors was held June 9, 1891, "with the president in the chair." Seven councillors and the secretary *pro tempore* were present. Nominations for honorary memberships were made, and it was voted to recommend to the Association that it should petition the overseers of the university for the right of suffrage in the election of overseers.

In the ensuing 100 years, that constitution was to be revised and adjusted according to the needs of the new social environments in which medicine was functioning; it was to admit more democratic elements and recognize the varying parameters of the practice of medicine; and it was to reflect the changing relationship of the Association with the school. But for the first constitution, only graduates with the approval of the council were eligible to become members. Every member was to pay an initiation fee of one dollar and annual dues of one dollar, though a single payment of \$20.00 would insure lifetime membership. However, neither eligibility nor payment of dues were sufficient to maintain membership. Entitlement was qualified by Article III, Section 2 of the Constitution, which asserted, "By recommendation of the Council and two-thirds vote of the Society at any regular meeting, any member may be dropped."

The Association was to be governed by one president, ten vice-presidents, one secretary and one treasurer, each elected for a term of three years; and a council of 15 members, whose terms were staggered from four years to one. Elections to the council were to be held at the annual meeting of the Association, which was to take place in Boston on the Tuesday preceding commencement at Harvard College.

The first annual meeting of the Harvard Medical Alumni Association took place on Tuesday, June 23, 1891 at noon. There were 112 members in attendance. An account of the meeting of November 26, 1890 was read, followed by the treasurer's report. Accordingly, during the months of May and June, a total of \$1,182 had been received from initiation and annual fees, and from life memberships. Ex-



*James R. Chadwick, Class of 1871*

penditures for printing, postage and stationery, rubber stamp, and service of a typewriter amounted to \$224.09, leaving a balance of \$957.91. Following adjournment, the members of the Association assembled for dinner at the Hotel Vendome. There were present 194 members and two invited guests. At the close of the dinner the meeting was addressed by the president of the Association, Dr. Chadwick:

Fellow Alumni of the Harvard Medical School:

The movement which has resulted in the formation of this Association did not have its origin in the minds of a few restless spirits, as you might hastily infer from the names appended to the call for the meeting of organization; but we were inclined to the step by a widespread and ever-growing sentiment among the Alumni that we can be of

more use to our School in its efforts to raise the standard of medical education, when banded together as an organization, than we can by our individual exertions.

In the remainder of his address, Chadwick responded to those who criticized the connections of the Harvard Medical School with the university:

... Our School is fortunate in being one department of a University, and that the oldest and the best equipped one in the country. Our country is suffering from the multiplicity of independent medical schools, established in many instances from no high motive, conducted for the purpose of making money or promoting the personal aggrandizement of its professors. The result is degrading to medical education, and inflicts upon the community a horde of



ignorant practitioners. The connection with a university insures a higher grade of instruction, a greater devotion to the scientific side of medicine in the teaching, a stimulus to original research, economy in the establishment of museums and laboratories, and finally a diploma which borrows lustre and value from the renown of the University . . .

Chadwick proceeded to list European precedents, and the fundamental advantages of the connection of medical education with a school of arts, and the rights and privileges the professional schools such as law and medicine deserved.

. . . When we go back to the origin of universities, what do we find? That the earliest universities in Europe, as here, may all be traced to the social wants of the communities in which they had their source. The earliest institution which deserved the name of university originated in the Medical School of Salernum, to meet the needs of the human body . . . Salernum was a School of Arts as well as a Medical School, the full curriculum consisting of a three year's course in arts as preliminary to a five years' course in medicine . . . As early as 1065, the school was so famous as to attract students from Italy, France, Germany and Spain . . .

At that first meeting of the Association, letters were read in response to the foundation of the Association, lauding Chadwick and his colleagues for their leadership and efforts. One letter to Chadwick was from Beverly Farms, Massachusetts, dated June 19, 1891, and signed by his lifelong friend, Oliver Wendell Holmes, who was 81 years old at the time.

. . . I send my heartiest greetings to the Association. I know the members would receive me kindly as a relic of the past, not without certain value as a fragment of antiquity. I have long been the sole survivor of that primeval Faculty of which I became a member in 1847. In that point of view, I am not merely a rarity, I am a unique specimen, and have an adventitious market price, like one of those rare sets for which collectors pay a premium. Half worn-out old copper as it is, its scarcity makes it worth a dime, or perhaps, a dollar . . . I have grown prolix with my recollections, and I will close at once by wishing long

life and all prosperity to the Association of the Alumni of the Medical School of Harvard University.

The foundation of the Alumni Association had coincided with the Eliot years (1869-1909). As is well known, this was a time of vigorous educational reform; it was also when much of HMS as it is today began to take shape. President Eliot, lauding the "efforts of the great mass of alumni," commented on the changes in the medical school:

. . . It would be difficult to overstate the importance of the effort which this single School is making, with no support except the approval of the profession, to improve the system of medical education in the United States . . .

The support and involvement of HMS alumni was not singular to the medical school of Harvard. Already in

1865, Harvard alumni had become responsible for the self-governance and independence of Harvard University. "An Act in Relation to the Board of Overseers of Harvard College," passed and enacted by Alexander H. Bullick, Speaker of the House of the Commonwealth of Massachusetts, and President J.E. Field, of the Senate, insured that the overseers' place previously held by members of the Old Senate, would now be filled by the alumni of Harvard College, thereby insuring the university's independence from outside influence.

The reader of the first history of Harvard Medical School by T.F. Harrington would be disappointed if looking for a separate account of the Alumni Association. Himself a graduate of HMS, Harrington makes no distinction between the history of the school and that of its graduates. For

## HARVARD MEDICAL SCHOOL ASSOCIATION.

Boston, February 1, 1891.

DEAR SIR:

The Harvard Law School Association has the credit of being one of the most potent causes of the rapid growth in attendance of students upon the Law School, whereby it has nearly doubled in size within the past five years. By the gift of one of its members, the Association is enabled to send the "Harvard Law Review" for the year 1890-91 to all its members not already regular subscribers. A thousand dollars was appropriated from its funds in 1889-90 to increase the instruction in Constitutional Law. For several years a member of the Association has contributed an annual prize of one hundred dollars to be competed for by third-year students. A member has contributed a thousand dollars annually to defray the expense of a course of instruction in Massachusetts Law. The Association has now in preparation a catalogue of its members.

The above enumeration illustrates some, but not all, of the directions in which alumni associations may be beneficial to their Alma Mater and to their members, and a consideration of these advantages has suggested to certain alumni of the Harvard Medical School the importance of organizing a similar Association of the Medical graduates of our University. It is thought that the mere catalogue of its members will be of great value in enabling physicians to ascertain what graduates of the Harvard Medical School are resident in the various cities of the Union, and in thus guiding their choice of physicians to be consulted by patients travelling in distant parts of the country.

A meeting was held in Boston on November 26, 1890, with Dr. A. H. Johnson, President of the Massachusetts Medical Society, in the chair, to consider the advisability of forming a Harvard Medical School Association. After full discussion, it was unanimously voted expedient to do so, and the undersigned were appointed a Committee to draft a constitution, to invite all graduates of the school to enroll themselves, and to call a meeting for permanent organization as soon as is deemed expedient. The plan is to have a meeting and dinner at least once a year. The Committee, after carefully estimating the probable expenses, have voted to recommend an initiation fee of one dollar and an annual assessment of one dollar.

Will you please signify to the Chairman at an early date your willingness to become a member of the Association?

JAMES R. CHADWICK, M. D., *Chairman*,  
270 Clarendon Street, Boston,

FRANCIS H. BROWN,

H. P. BOWDITCH,

GEORGE E. FRANCIS, Worcester,

LINCOLN R. STONE, Newton,

*Committee on Organization.*



him, the two 'histories' are interlocking elements of a single account, and are incomplete without each other.

In the late 20th century, the historian may explain the two components and their interdependence by analogy to the diaspora and a homeland. A member of the diaspora is that person who holds strong allegiances to the land or country in whose traditions, life and ethos he or she shares, but by choice or circumstance, lives away from it. The individual living in a diaspora has a dynamic existence, one which causes continuous change and adjustment in his or her identity, however composite and complex that identity might be to start with. Yet more often than not, the process of adjustment and change results in an enriching relationship between the individual and the homeland.

Whether or not this specific characterization applies to the relationship of the school and its alumni may be arguable. But it seems to be borne out by Chadwick's own career and commitment to the school. After his degree from HMS in 1871, Chadwick pursued his medical studies in Berlin, Vienna, Paris and London, particularly studying the diseases of women.

Upon his return to Boston in 1873, Chadwick became the moving spirit in the foundation and composition of the American Gynecological Society in 1876, and acted as its first secretary for seven years and as its president in 1897. He was also instrumental in the publication of the early volumes of the *Annual Transactions*.

Beyond daily private care of patients at Boston City Hospital and at his office, Dr. Chadwick was clinical instructor in gynecology to Harvard medical students from 1881 to 1887, he translated medical texts from the German, and in 1885 he played an active role in the reorganization of the then decadent New England Cremation Society. Like many of his generation and later generations of graduates, he brought his knowledge and experiences to his alma mater.

There can be little doubt that in Chadwick's vision, the members of the Association, over which he presided for the first four years, were to be the leaders in the evolution of medicine in the country at large, and as such, participants in the school's mission. The Association was to take an active part in the molding of the profession of medicine; its members were to set examples for the future generations of graduates.

By all accounts dealing with his



life, Chadwick's main interest was medical libraries. He believed that the library was the heart of the system of education. The formation of the Boston Medical Library in 1875 was brought about in large part by his inspiration. He served as librarian, doing all the cataloguing, from its inception up to the time of his death. It is said that his "want book" was always with him in his travels in this country and abroad, making him a familiar figure in bookshops and libraries throughout the world.

He also began an excellent collection of pamphlets, autographs, paintings and photographs. His contemporaries said that he had no librarian's office, he had no desk, no closet, no drawer—merely a small wire basket in one corner of a shelf in the cataloguer's room, in which were placed various memoranda, old catalogues and odds and ends. But, the whole library building was his field of action.

Chadwick's close friend Oliver W. Holmes described him as "the untiring, imperturbable, tenacious, irrepressible, all-subduing agitator, who gave no sleep to his eyes, no slumber to his eyelids, until he had gained his ends, who neither rested nor let others rest until the success of his project was assured." All the time Chadwick maintained the temperament of "a poet and artist."

The response of the alumni to the "all-subduing agitator" was remarkable. During the first year of the Asso-

ciation's existence, 810 of the 1,562 graduates had joined the Association. By June 1892, the membership had grown to 1,035 and by 1898, it had reached 1,275, with 22 states represented. Of these, about 200, mostly local men, attended the annual dinner.

Meanwhile, Chadwick and his successors, carried on the business of the Association. Discussions of the council and the Association through the first couple of decades of the 20th century included the four-year curriculum at the school, the publication of a catalogue to be sent to every graduate of the school, the publication of a bulletin, and guest lectureships for students and alumni. The first lecturer was Professor H.C. Wood of Philadelphia, who gave a series of lectures on therapeutics. The *Bulletin* was to contain "information about the Medical School, especially calling attention to the later modes of instruction in some of the departments." The council voted that no more than \$650 should be spent upon the lectures and the *Bulletin*.

In 1902 the council suggested that students should know something about what the community expects of them as doctors, and suggested that a course of five or six talks be given during the winter by men eminent in various callings on the general subject of the "Relation of the Physician to the Community." The first lecturer was President Eliot, in December 1902. Other lectures in the series were given by the Hon. Moorfield Storey and by Major Henry Lee Higginson.

J.R. Chadwick was found dead outside his summer residence in Chocorua, NH on the morning of September 23, 1905 at the age of 61. His colleague W.L. Burrage summed up Chadwick's personality in his obituary, published in the *Transactions of the American Gynecological Society*:

He was a delightful host, a clever conversationalist, generous to a fault, and on account of a certain spontaneity, seemed younger than his years. Bohemian in tastes and unconventional, though always particular in dress, his flowing neckties and commanding presence made him a noticeable figure on the street and in the law courts where in later years he spent much time testifying as an expert in gynecology. . . . His temperament was that of the poet and the artist. He looked beyond the present to the ideal. . . . Broad-minded and singularly free from narrow prejudices, he could see in acquaintance or friend those quali-



ties which make for distinction, ignoring the lesser discordant notes, and he was ever ready to give a hearty welcome to a new thought, a progressive idea, or a fresh purpose no matter whence it came . . .

The model he set for the alumni of Harvard Medical School, and to the young Association, was clear in the eulogy that appeared in the 1906 issue of the *Bulletin*:

... Thus came into existence the Harvard Medical Alumni Association, created by the energy and

enthusiasm of a man who, with the expiration of office, never allowed his interest to flag, and never relaxed his efforts to promote its welfare. And now this Association is mourning his untimely death, in company with not only hundreds of individuals who were bound to him by ties of affection and respect, but with other organizations which looked up to him as their founder and moving spirit. For it was Dr. Chadwick's gift to see where the community of humanity at large might be benefited by the organizations of some benef-

icent scheme or its crystallization into a definite enterprise. The Boston Medical Library, the American Gynecological Society, the Massachusetts Cremation Society, besides many lesser bodies, share with the Harvard Medical Alumni Association the loss of their founder and best friend in the death of Dr. Chadwick. □

*Nora N. Nercessian, PhD is associate director of the Harvard Medical Alumni Association.*



# Skeletons In My Closet

by Alfred Worcester

lier—right next to the Boston City Stables, and about equidistant from the Massachusetts General Hospital and the Charles Street Jail. It was a glum, poorly lighted, badly ventilated, overcrowded building, with an adjoining wooden shed with skylights.

Through large barn doors, a mysterious covered wagon would occasionally arrive, bringing corpses, or stiffs as we called them, for the dissecting room in the western part of the shed. This arrival was always the cause of excitement among the students, for corpses were so scarce that students were behind in their dissecting schedules. Since by day the tables were in full use by first-year students, we had to do our work by feeble gas lights at night.

This was before corpses were embalmed. Body snatchers were not always successful in getting recently buried cadavers; the stench of that room was so penetrating that a bath and complete change of clothes had to follow work. Since a great public outcry against the use of bodies from state pauper institutions cut off that source of supply from medical schools, we had to make do with whatever we could get, and when.

Dr. H.H.A. Beach was the Demonstrator of Anatomy. I learned little from him, but he kindly let my slovenly work pass mid-years—very fortunately for me, because I then became desperately ill, either from dissecting room poisoning or from septic surgery. I never found out.

What I recall is that on Ash Wednesday, too miserable for work, I went to Trinity Church for the afternoon service. Leaning back against the fluted column in my usual place opposite the pulpit, I did not hear Phillips Brooks begin before I realized he had finished. Then I knew I was ill.

For several days I had a painful swelling under my jaw. For relief of that I went not home, but to the house of the Massachusetts General Hospital interns, of whom I knew several very well. They told me I had a high fever, that the abscess under my jaw must be immediately opened and poulticed, and that I was to go to bed.

Then one of them, dear Ally Wakefield, whipped out from his pocket surgical case a knife that had never been sterilized since leaving its maker's forge, and lanced my abscess. A poultice was soon brought, and with bandaged head I started off for Waltham,

Late in September of 1881 I began my medical school education. The regular course of instruction was then three years with an optional fourth in the specialties of medical practice. One could escape attendance for the first year by registering as a pupil with an outside doctor before attempting the examinations. This I had done.

Altogether I had only 11 months of formal education in the Harvard Medical School before achieving my MD degree in 1883. Early in my practice I regretted such little medical education, only to later enjoy teasing my better educated colleagues with the claim that I had less of the obsolete to forget.

The medical school was then housed in an old brick building on North Grove Street—the infamous locale where Professor Webster murdered Dr. Parkman nearly 40 years ear-





*Oliver Wendell Holmes in his later years.*

obstinately declining their offer of a hospital bed. Before reaching home, I repented every step of a long mile walk home for an endless night and a long sickness ahead. In delirium, I was constantly talking of a crime I had committed, which would destroy all my hopes of ever being a physician. Now at last I make a full confession.

After finishing my last dissection I had won possession of the skeleton from my four partners by lot. In those years, long before x-raying, every country doctor was supposed to have a skeleton in his closet, by which he could remind himself of the bone he might be called upon to set. Skeletons cost around \$30.

For \$5, however, the janitor would boil the bones of a cadaver so that the

student could easily scrape them clean. My bargain with the janitor required me to disjoin the bones, bag them and hide them in a cupboard in Professor Bowditch's physiology laboratory. This had to be done at night. I had just done so before my illness, although I am not sure I had alerted the janitor.

At any rate, in my delirium I believed that Dr. Bowditch had discovered the cause of the stench and had threatened the guilty student with expulsion. Four months later, I read on the bulletin board his request for any information that would lead to the detection of the culprit. I did not confess, much to the janitor's relief, nor to my lasting regret did I ever have any acquaintance with Dean Bowditch, even though one of his daughters be-

came my patient. It is not a pleasant story, yet one that does set forth the sordid conditions in the early 1880s.

The erysipelas prevented my return to the school until June. With hairless head and full-grown beard I met with classmates' questioning: "Worcester, where in hell have you been?" With the help of their notebooks I soon went in for my examinations and passed them.

The most famous member of the faculty was the professor of anatomy, Oliver Wendell Holmes. His lectures furnished such entertainment that many attended who were not enrolled in his class. The bones that he described came to life under the illumination of his imagination. For example, when describing the pubic arch, he held up one of the bones and told us, "Under this noble arch every human being, on entrance into this world, reverently bows its head upon its breast."

I had missed the Oliver Wendell Holmes inimitable lectures on anatomy, however I did get their flavor when word circulated that a special topic would be discussed by "the autocrat," as some nicknamed him. The old amphitheatre would then be packed by students in all classes, even by old graduates—an audience never disappointed.

His wit was not really as spontaneous as he wanted it to appear, and was so polished that there was usually a double pun or witticism to look for while laughing at the first. For example, when speaking of the rounded cushion stump of the soldier's amputated thigh, he said, "How can the surgeon fail to acknowledge there's a divinity that shapes our ends," and then, bowing to the surgeons in the front seats, "rough hew them as we may?"

In great contrast to Holmes in personality, although equally thorough masters of their subjects—surgery and chemistry—were Professors David W. Cheever and Edward S. Wood. Their lectures were superb, though neither of them used a superfluous word or even smiled. They fully appreciated the life and death importance of their teachings.

I have always wished that I had not missed so large a part, for what I did learn has stood me in such good stead. Had I not learned from Professor Wood the importance and the process of urinalysis, I should not have saved a patient who was near her death from arsenic poisoning. The source of this



was finally traced by my brother-in-law, Professor W.B. Hill, to the buried wallpaper of her chamber. He discovered that when a wallpaper containing arsenic is covered with a paste for a new paper, the deadly gas of arsenic hydride is set free. This particular case was one that brought about government regulations eliminating the use of arsenic in wallpaper.

While many of another professor's surgical maxims hold good today, one of his sayings sticks in my memory as evidence of the revolution that has taken place in medical science since my student years. In Dr. David W. Cheever's discussion of the nature and treatment of malignant pustule, he told us, "A Frenchman (Pasteur) claimed that a certain germ or bacillus was the cause of the disease," adding, "those who so wish may believe it. I do not." That was the only mention of the germ origin of disease that I heard during my medical school student years, 1882 and 1883.

From the professor of obstetrics, Dr. John P. Reynolds, I learned much worth remembering, even though he was a poor lecturer. Too fond of metaphor, he sometimes mixed them so badly I could not always be sure what he was talking about. Dr. Reynolds, a man of noble bearing, grace and old-fashioned courtesy, was certainly religious. A story about him is characteristic. Once while attending a woman in perfectly normal labor, he was found by the woman's husband on his knees in a nearby room. The husband asked if his wife really was in such grave danger. "Oh no, she is doing very well, but



*General working room in the Sears Laboratory, 1893.*

in helping a woman in the perils of childbirth, I always pray for our Creator's grace that I may worthily cooperate with Him." Such religious faith seldom found expression in Harvard circles in those times.

In no other branch of medical education has there been a greater advance in this century than in that of obstetrics. Largely this has been due to the discovery of the germ origin of childbed fever, which in my student years was the cause of fearful mortality.

Even more horrible in my memory of those years was the teaching and practice of child destruction in order to save the life of the mother when delivery through natural channels was impossible. I know of no more devilish

instruments than those devised for this purpose. And yet, halfway back to my student years, in reporting a case where I had to send back to my office for these instruments, I was mercilessly criticized for undertaking such consulting obstetrical service without carrying with me these instruments for child destruction. Only after the certain death of the unborn would such dismemberment be the best procedure. Happily, caesarean operations have become so common there is no longer need to fear that exigency, nor need to teach operative obstetrics such as I learned as a student.

Another great improvement in teaching was just beginning in the Harvard Medical School in the years I am describing. Students were being sent to serve as doctors in the homes of the poor. If any student found himself in difficulty, he could send for help from the senior intern at the Lying-In Hospital. Dr. William L. Richardson, a top-notch instructor in operative obstetrics, I believe, is due credit for this advance, both in medical education and in social service.

I suppose every physician more vividly recalls his first obstetric case than any other of his hundreds of subsequent cases. However that may be, I shall now describe my first case not for its intrinsic importance, but as an illustration of medical education amidst the social degradation of the 1880s.

In bitterly cold weather I was sent to take care of a young woman in labor whose pains had failed to bring forth her unwanted child. She was a poor rag-picker, befriended in her misery by a pair of fellow workers, perhaps a married couple, whose home consisted



*The Class of 1905 at the dissecting table in George C. Shattuck's laboratory.*





*The Old Bigelow Amphitheatre at MGH, 1900. Physicians include J.C. Warren, W. Conant, Charles B. Porter, Maurice Richardson, A.H. Beach, Samuel Mixer and Fama Cobb.*

of only one room in an old house located in what was once Boston's fashionable North End. The man had moved downstairs into the coal bin to give his place in bed to this poor, ill-shapen girl, who had been turned out of her former lodgings because of her illegitimate pregnancy.

Not for two days did I recognize the utter hopelessness of her unproductive labor. During this time, while I was following too strictly my instructions not to send for help needlessly, I left the stuffy room only for brief snatches of restaurant food and the even more needed fresh air.

At last I sent for help, telling my story to Ben Simonds, my classmate who had become senior intern at the Lying-In Hospital. With forceps he at once delivered the girl of a wizened child who was never able to suckle his mother's breasts.

After a few days of feeding by spoonful with whatever kindly callers suggested, it became evident to all that the child could not live much longer. The mother and friends were more than willing for me to take it to an infant's hospital, which my cousin, Dr. Thomas M. Roach, had started with Dr. Haven on Blossom Street. I had obtained permission from the kind matron, Miss Bush. When I brought the baby wrapped in rags, Miss Bush had some hesitation about admission.

To save the baby from freezing I had kept it near my own body under my overcoat. I have never believed that the baby's death was from smothering, nor did the autopsy so reveal. I do not know how many city or state laws I broke in this instance or afterwards in some others where illegitimate babies and their distressed mothers were concerned.

I have only vague memories of many other professors, instructors and lecturers of that time except that I passed their examinations with help from borrowed notebooks. No student, however, who ever attended the classes of Professor R.H. Fitz could have forgotten his insistence upon exact words for the description of pathological specimens. He was a great teacher of accurate observations and of logical deductions there-from. Further, any pen sketch of Dr. Fitz has to include the word appendicitis, a strong interest.

Among those nearly forgotten was the Professor of Materia Medica, whose lectures were as dry as the herbs he described. However, with him we visited an old drug establishment in Boston, where bunches of dried herbs, waiting to be made into powders, pills and mother tincture, reminded me of my great-grandmother's attic, where hung bunches of hardhack, spearmint, boneset, thorough root, hoarhound and I know not how many others, from

which she made pills and infusions, or teas, as some supposedly healing but nauseous drinks were called.

I have always believed that in the old curative herbs and animal products there was more virtue than has been recognized in later years. What could modern doctors do without morphine, atropine, quinine, the digitalis derivatives, insulin and the liver extracts? In my student years the medical trend was towards derivatives from coal tar—anti-febrin as actanilide then was called—the first of a long line of the chemical products that displaced medicines made in nature's laboratory. Now comes the return to it, to the lowly molds, to penicillin and its partner, streptomycin. Great has been the revolution of materia medica.

The most distinguished member of the faculty was Henry J. Bigelow, who became *emeritus* while I was a student. His fame was international. In both London and Paris he had demonstrated at least two of his surgical advances. One was the way to reduce hip dislocation easily and without further injury to the ligaments. Before this discovery the only way was by hauling the leg so forcibly as to tear the ligaments of the joint. This force was furnished by use of a block and tackle to greatly increase the surgeon's pull.

Bigelow, after a long study of the hip joint, discovered the Y-ligament and thence how to move the leg so the ball of the femur would slip back into its socket. This he could do with only one hand. More importantly, he could teach this procedure even in printed words. One of his exploits became a famous story of the time: he saw a woman fall on the icy pavement at a Boston street corner, went to her relief, made the correct diagnosis, reduced her dislocation and raised her up on her feet.

His other advance in surgery likewise developed out of long study and experiment. Curiously the disease of bladder stones, once so common, has almost disappeared. This somewhat diminishes Bigelow's fame for crushing and removing such stones from the bladder. But to him goes the credit for making possible, by way of the urethra, all kinds of surgery formerly necessitating body incisions. I count it a great privilege to have seen Bigelow operate in the Massachusetts General Hospital. But, I am glad I never had intern service under so temperamental a task master as he was, even regal in his carriage, self-willed and very receptive of his colleagues' homage.

Another great teacher, Calvin Ellis,



resigned from his professorship in my student years. He was also dean. Unlike Henry J. Bigelow's dazzling personality and career, Ellis' quiet modesty never attracted the fame he was due for his advances in the science of medical practice. The whole medical profession is in lasting debt for teaching us differential diagnosis. Nowadays we take this method for granted. Before his teaching of this method, doctors made their diagnosis by comparing the symptoms with those seen in other cases or perhaps only read about in books and journals. That was guesswork. It might or might not give the right diagnosis.

I never heard Ellis lecture, but I came under his teaching in conferences where students in turn had to give their reports on assigned cases. Mine was a case of pneumonia. After reporting the course of the patient's disease, I offered the suggestion that since pneumonia and erysipelas are so alike they must have the same cause. The sudden onset of a severe chill, the same temperature charts and, above all, the location of the inflammations in the same embryologic middle layer of the body made it at least highly probable that both diseases are caused by infective germs, which in pneumonia had penetrated the inner embryological layer (the bronchial mucous membrane) and in erysipelas the outer layer, the epidermis.

This theory, somewhat amplified, was the basis of my thesis for winning my MD degree. That would have been the end of it had I not previously read it at a meeting of the Boylston Medical Society, to which I had the good fortune to be elected. There my thesis attracted some attention.

In later years I was pleased when one of my classmates, Henry Jackson, held that mine was the first reference in Boston to the germ origin of pneumonia. However that may be, I can claim priority as the earliest Harvard medical student to have taken both bacteriology and embryology in pursuit of my AM degree, both subjects now considered necessary foundations of medical education.

In my sketches of professors whom I especially recall, I am not attempting to give any account of the whole faculty. Some of them I barely knew. Then, as now, I was more interested in the art than the science of medical practice. Such lessons, I soon discovered, could only be learned in the clinics. There were fine opportunities in those years.

I was fortunate to be assigned to the clinic conducted by Fred Shattuck in the St. Elizabeth Hospital, then full of

consumptives. He taught me how to percuss and auscultate the chests of poor, dying girls. Better yet, he taught me how to soak my hands in hot water before touching them. Fred Shattuck was nowise behind in the science of medicine for having been foremost in the art of its practice. In his 40th year he almost despaired of being able to earn his living as a doctor, and gave himself one more trial year before giving up in favor of some job in business. Fortunately during that year his practice grew by leaps and bounds.

Among the many other instructors in the clinics of the out-patient service was John Elliot, one of the best teachers and in the most unpopular branch of medical practice, gynecology, which was then slowly emerging from darkness. My readers will hardly believe this part of my story.

Only those of my own great old age can remember how common it was once for fine healthy women to become

hopeless invalids after childbearing, and yet how often such women after dark or alone in the wards would seem to be in the best of health. Many of them were supposed to be bedridden or so mentally afflicted that they were to be seen only by their family members, or perhaps by intimate friends, who knew the mysterious nature of their infirmities. Nine times out of ten, such women had suffered injuries in childbearing which had deprived them of all control of excretions. Doctors could give them no help until a young Alabama surgeon, Marion Simms, found out how to repair such injuries. He became world famous—one of his patients was Eugenie, Empress of France—and he taught other doctors his methods. Hospitals for women began to spring up.

But so great was the opposition to male surgeons' service of this character that female doctors were needed. To the general surprise, female doctors



*Henry Bigelow and his myna bird, which he kept in his office and taught to talk.*



especially disliked such service, as they began to clamor for recognition as general practitioners, and for admission to all medical schools and societies. Such was the situation in my student days. Only now in 1945 has the Harvard Medical School decided to admit female students.

During these three-score past years there has been a marvelous change in medical care for women. Such injuries as so many suffered in child-bearing are now either prevented or immediately corrected. Women without the false modesty of the past now naturally expect their doctors to care for the whole body. The specialty of gynecology, which began in the 1850s and was a troublesome Boston infant in the 1880s, has been steadily accepted.

So long an account of a medical specialty may seem to be a diversion from my subject, yet it is a necessary ingredient for any description of the Harvard Medical School in the 1880s.

John Homans, "Uncle John" as he was affectionately called, was a specialist of the specialists, famous only as an ovanatomist, his Harvard title. He was a great favorite, with a lively tenor voice. In selected groups, students were allowed to witness his operations in the refined little hospital of the St. Margaret's Sisters in Louisburg Square.

Ovarian tumors, before his time, incapacitated many women; some were bedridden. The tumors were bags of fluid not seldom weighing more than the rest of the patient's body. Uncle John's solution was of ideal simplicity. By a small incision through the abdominal walls the bulging bag could be pierced by a pointed tube, a trocar. After the tumor was thus drained off the shriveled bag would be tied, cut off, and the stump dropped back into the abdomen, more often stitched to its wall.

Under the meticulous cleanliness of the sisters' care, subjects of such surgery almost always recovered perfect health. Amateur surgery as it was, we students had awesome respect for Uncle John's bold mastery of an hitherto incurable disease.

William H. Baker, the professor of gynecology, was of an altogether different type of man. Smooth and sweet, not bluff and hearty, with his gilded instruments in profusion, he magnified the importance of Marion Simms' reparative operations, and the cost of them, at private hospitals. His extortions—worse, his continuous visits in the treatment of rich patients to internal massage for imaginary complaints—won for him besides their gold, the



*Alfred Worcester, the "Oldest College Graduate," leads the alumni procession in 1950.*

righteous contempt of his colleagues.

As an example of this hostility, I was begged by the then president of the Massachusetts Medical Society to avoid in general practice all taint of gynecology. When he stated that never had he uncovered a patient, and I had asked him how then he could be sure after child-bearing that she had not been injured thereby, he proudly averred that never had such accidents happened in his practice of delivering women under their bed clothes.

Years afterwards, when one of his former patients came under my care, I found that she had been terribly torn. As another example of the hostility of the medical profession in those days, I was warned by a distinguished professor of the Dartmouth Medical School to avoid all connection with the "dirty gynecologists."

In returning now to John Elliot's teaching in my student days, I can offer real refreshment to my readers. My first glimpse of Elliot was when, tagging along in Bigelow's wake in the ward of the Massachusetts General Hospital, I heard him say, "She has some pelvic trouble. Send for Jack Elliot. He will examine her internals as I never do." Elliot did soon come, made the examination and reported his findings. I was deeply impressed by his directness, his skill and knowledge. Soon I found myself at his out-patient clinic at the City Hospital, where he taught small groups of students how to diagnose pelvic diseases. Students were taught by the German method; not by

telling them what they would find, but by questioning them on what they found.

His was the best kind of teaching, like that of Professor Fitz. More than that, his courtesy and kindness to those women was a valuable lesson, which came not from German clinics but from his chivalry. He was not merely an expert gynecologist, for that was only a branch of his excellent general surgery.

It was he who saved my life by boldly operating on me when others contended I was too far gone with appendicitis. It was Elliot who a few years later was my only backer among Boston surgeons when I fought for immediate surgery in cases of appendicitis.

Besides the clinics of the professors and instructors of the school, we had the advantage of witnessing operations in the amphitheatres of the hospitals, also of walking through the wards with doctors not necessarily connected with the school. Especially from one of these, George G. Tarbell, I learned many valuable lessons. He taught us to allow typhoid fever patients semi-solid food against the dictum then current of giving only fluids.

I was reminded of this in Germany when I saw plates of thick roast ham and heaps of spinach given to such patients by Bismark's favorite physician, one said to be the only man Bismark dared not to disobey. Tarbell told me, "You Americans give only fluids to your enteritis patients. It takes them months to regain their strength. My patients walk home after the fever is over."

As soon as I began my practice Tarbell turned over to me his Lincoln patients, including his own mother. In those early years he was often a great help as my consultant.

Typhoid fever, common then, has so far disappeared that young graduates in medicine sometimes ask us old doctors if we have seen cases of it. So typhus, small-pox and diphtheria have become rare. I believe tuberculosis will follow them into oblivion. Already homes for the shelter of dying consumptives have given place to sanitariums for the care of those with tuberculosis. It is about impossible to give to those acquainted with modern hospitals any vivid picture of what were rightly called the foul wards we remember where patients were dying every day of diseases now almost extinct. Not only the patients, but also the nurses and young doctors often died there with them.



I started my internship at the Boston Lying-In Hospital before quite finishing at the medical school. For lectures missed, I was saved once more by my classmates' notes. I was so poorly prepared for my final examinations that I hardly expected to pass. To my surprise, I did.

As an illustration of the value of such examinations as a test of knowledge or ability, my mark in surgery, of which I knew nothing, topped Pfeiffer's by as much as his mark in obstetrics topped mine. He had won a surgical internship at the Massachusetts General Hospital, and had been doing fine work there while I had been at the Lying-In.

I had expected to take the elective fourth-year course, and had supposed that I was so registered, when to my surprise some classmates reported that my name was posted among those to receive the MD degree the following day. This had to be a mistake because I had not yet taken some required courses. No matter, I went out to commencement just on the chance, and was handed my degree by the president. I dared not say that my degree was given to me after only 11 months' work in the medical school, yet such was the fact. □

*Alfred Worcester (MD 1883), ScD was the Henry K. Oliver Professor of Hygiene at HMS, who died in 1951 at age 96. His life spanned a large period of history. He was six years old at the outbreak of the Civil War, he heard the story of the Battle of Lexington from the lips of an eyewitness, and he conversed with Edward VII and Florence Nightingale. He was one of the first patients operated on for appendicitis following Reginald Heber Fitz's demonstration of the pathology and symptoms of that disease, and afterwards he led a vigorous crusade for its surgical treatment. He also crusaded for the caesarian operation, the early hospitalization and rehabilitation of patients with tuberculosis, and for district nursing as an ancillary form of medical care. He also wrote on such subjects as "The Care of the Helpless," "The Care of the Aged," and "The Care of the Dying" long before they came into their current vogue. The excerpt printed above is taken from his reminiscences, entitled "Harvard Awhile," which he left unpublished at his death, and were later edited by Richard B. Beanman.*

# Learning from the Masters

by Carl W. Walter

**T**he retrospective impact of individual teachers on a medical student should be of current interest in the complex, too often impersonal assemblage known as medical education. My adventures at HMS (1928 to 1932) illustrate what students today seem to long for in their search for professional identity and purpose.

I shall never forget visiting Elliott Cutler to thank him, because as chairman of the Harvard Club of Cleveland he had arranged a scholarship to Harvard College for me. I used to call on him every spring vacation to report what had gone on. At the end of my senior year he asked, "What are you going to do?"

I said, "I've got a job with DuPont. I was recruited last January, and I'm going to be a chemist in the research department."

"Oh, Christ," he said. "Carl, don't waste your time on the nuts and bolts of chemistry. You ought to get working with people; you ought to go to medical school."

I answered, "Well, I can't do that. I'm broke and it's too late to be admitted."

"Well, we'll fix that." He promptly telephoned someone I later learned to respect a great deal, Worth Hale, the assistant dean of Harvard Medical School. Cutler introduced me, I got quizzed long distance, and two minutes later Hale said, "You are admitted."

So I turned to Cutler, "Well, that's easy enough to say but I've got no money, so I can't go to medical school. I've got to go to work and pay off my college debt."

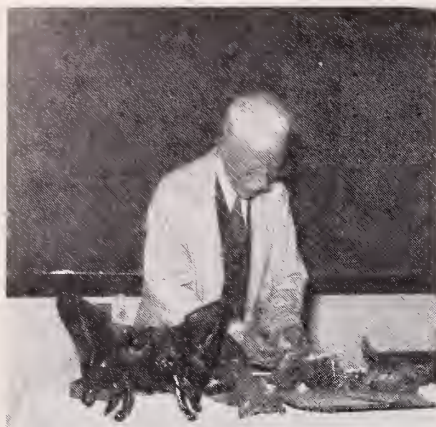
"I'll fix that," he said. He called Chester Bolton, the shipping magnate in Cleveland. He explained the situation, and I got a loan for my education. Bang, just like that.



Otto Folin, 1924

So I went to medical school. I hadn't been there but three weeks when Otto Folin, the Hamilton Kuhn Professor of Biological Chemistry, came by during the laboratory session. "Young man, you're wasting your time in this course," he said. "I've looked you up. You're a better chemist than we ever make around here, so why don't you come and work in my research lab. I've got a micro method for blood analysis and I need somebody to show where and how to collect the blood, see





*Robert Montraville Green, 1921*

if it is a valid sample, and so on.”

As a result I spent a good deal of my free time with Otto Folin and Hsien Wu, working on the Folin-Wu micro-method of blood analysis. It was a great opportunity and I was very much impressed by the contact with this fine scholar and great teacher.

The next faculty member I met was in anatomy—an impressive scholar, Robert Montraville Green, assistant professor of applied anatomy and instructor of gynecology. He actually turned our cadaver into a ballet dancer at every lecture. It was fantastic how that man could get our class to visualize how this cadaver would move—it seemed to come alive.

I also remember that my group had the best looking cadaver in the class because it hadn't been in the cage at HMS very long. Shortly after we started our dissection, Carl Corson, a dissecting teammate, broke out in shingles. Pretty soon Richard Arimizu got shingles, and then I got shingles. When we turned our cadaver over, we discovered that it had shingles. I've had three recurrences of shingles since—the last one two years ago. So my cadaver escapes Harvard's Pine Hill Cemetery in Tewksbury and keeps haunting me. Unfortunately Carl and Dick have both passed on so I can't check whether our cadaver #7432 still haunts them.

Another man I will never forget was a short, cocky individual, S. Burt Wolbach, the Shattuck Professor of Pathological Anatomy. He used to strut into the pathology lectures, wearing a carnation. He would strut very proudly in front of the class, with one hand anchored in a trouser pocket, the other arm swinging widely. As he went by, you'd hear money change hands among the students, depending upon whether he wore either a pink or a white carna-

tion. The Wolbach carnation raffle occurred every lecture.

About every two weeks, Wolbach would come in carrying a little woven basket. He'd put it on the desk and then he'd put on a green carnation. The money was his that day.

This seems characteristic of somebody who was trying to win the students' allegiance. I learned to respect him greatly when one day he came into the laboratory and said to me, “You seem to have a lot of trouble using a microscope. Let me show you how.” He sat down and started to fiddle with the microscope, and soon discovered that I had defective vision and I couldn't use a microscope very comfortably or for very long. He referred me to the Massachusetts Eye and Ear Infirmary, with a nice note to the George Williams Professor of Ophthalmology, George Derby.

Derby sat me in the chair, fumbled with a clumsy examining spectacle frame that kept slipping off my nose, repeatedly adjusted the lenses and said, “It's beyond me. I don't think we've got anybody at the Eye and Ear Infirmary that can help you. But there's an optician who just set up from Dartmouth. His name is Doane, down on Temple Place.”



*S. Burt Wolbach, 1924*

Doane strapped my head to a large machine and spent an hour measuring parameters of my vision. He prescribed some special omnifocal spectacles, which I've worn ever since. They are fantastic. They're really trifocals, and correct both the myopia and severe astigmatism.

Over the years, the prescription hasn't changed much, and I can see far

and near and bilaterally. All due to Wolbach's interest in the fact that his student couldn't use the microscope. He characterizes the kind of teacher we met at the medical school. I don't know anything about pathology. It never interested me much. But I've never escaped that cocky little professor.

I was shocked a little later on when I flunked the National Boards in microbiology. About the middle of the summer I got a letter from Hans Zinsser, the Charles Wilder Professor of Microbiology and Immunology. “Would you please, at your convenience, come see me?” So I did. “I've gotten your examination and I've discovered that you're a hell of a good chef for bacteria, but you know nothing about what bacteria do to people. You learned the wrong kind of information. You can identify bacteria, you know what they're like and how they grow. But you don't have any idea what they do to people.” He told me to go home and do this, and that and the other, and take the exam again in September.

I passed the exam with the highest grade in the country. Ever since then my avocation has been microbiology. I learned how important people are—because they can help put your trolley on the wire and get you going.

About that time I met a very young physician, F. William Marlow, assistant in medicine, who was a struggling young internist at the Brigham Hospital. He was my tutor in physical examination. I've never forgotten the drill he put six of us through for about eight weeks: befriend the patient, get his clothes off, and bang, you dance through the Marlow routine and record it on the Dictaphone. It gets in the record as the most important part of medical care. Bill Marlow's spirit has met every patient I've ever seen since. The Marlow drill was an organized, item-by-item routine for physical examination. We demonstrated our findings on each patient for his critical review. He subsequently edited our recorded history in great detail.

I think that's the kind of teaching that's lacking among many of the students who have progressed through a hodgepodge of disorganized physical examinations, but who haven't the least idea of what it's all about and hope to catch up someday. They didn't have the whip-cracking Marlow—gee his comments used to hurt a lot, almost as badly as those of Robert Zollinger, whom I met later.

Serving as externe on the Boston Lying-In outpatient branch blasted me into manhood. Classmate Alfred





Hans Zinsser

Rheinhart and I found ourselves at the McLean Street outpost in May of our second year. Fat Mary—the housekeeper and obstetrical guru—was in charge. She could even command the East Boston Ferry to wait for us on night calls. Al was confined to bed with bouts of chills, fever and profuse sweats, so I took all the calls.

There were 24 cases over two weeks. Six of these required transfer to the hospital via ambulance after consultation with an outpatient obstetrician and inspirational teacher, Fletcher Eades, assistant obstetrician. Four were delivered at home by the Boston Lying-In resident, house physician Theodore Bramhall, while I gave drop ether. The latter involved pulling spaghetti out of nostrils and otherwise struggling to maintain an airway in an unprepared patient, with the equally unprepared etherizer combating profound nausea—all the while goosing two lay leg-

holders to prevent them from fainting.

I delivered 14 babies solo, surrounded by husbands and relatives or neighbors of the predominantly Italian community—a fantastically maturing experience. Six boys of those I delivered in “East-a Bos” were named Carl. I was initiated into the local fertility rite on several occasions, when a father grabbed the placenta by the cord and, swinging it lariat style, flung it across the back fence to splash against the door of a childless neighbor.

Even though confined to bed, Al Rheinhart refused to concede he needed medical help until, goaded by Bill Marlow’s teaching, I pointed out flame-shaped hemorrhages in his nail beds and conjunctiva. He was admitted to the hospital with the diagnosis of acute bacterial endocarditis. He died six months later in those pre-chemotherapeutic days.

After the obstetrical experience of phenol solution/rubber glove asepsis under the supervision of Eades, it was quite a shock to be exposed to gynecology at the Free Hospital for Women under the gynecologic master, William P. Graves, W.H. Baker. Professor of Gynecology. Pelvic exams were done bare handed! The cervix was biopsied by scratching it with a fingernail. Finger cots were donned for rectal exams. I learned the inner details of the birth canal from the impressive sight of the vagina hanging distended in the lateral Sym’s position. But, it took years to forget those 20 bare-handed pelvics, which drove me to translate Semmelweis’s book on puerperal sepsis in the attempt to understand the eight-decade lag between discovery and application of a crucial clinical observation.

Memory of the persistent, cadaveric odor that permeated everyone’s hands when doing bare-handed dissec-

tion in the anatomy laboratory, and the shingles our group experienced, confirmed Semmelweis’s vivid description of the spread of ichorous discharge from a sloughing cervix to a series of 10 other patients, all of whom died of puerperal sepsis, despite supervised hand-washing after each examination. In nine experiments on postpartum rabbits, he demonstrated that disinfection with chlorinated lime was essential to stop cross-infection. Yet, hand-washing persists as the *sine qua non* of proper infection control!

I met a pair of physicians who had a great impact on me, because I was trying to earn money: Albert A. Horner, assistant in medicine and tropical medicine, an internist at New England Baptist Hospital; and James H. Townsend, assistant in medicine, and an internist at the MGH. Jim Townsend was sort of famous because he was one of the house officers who had made the first injection of insulin in Boston.

I worked in their office at 319 Longwood Avenue doing blood chemistries, which Horner transported from the Baptist Hospital. I installed Otto Folin’s micro method, and I did blood chemistries for three years—it paid well. As a matter of fact, Cliff Barger ’43A inherited the job when I left.

I had the satisfaction of installing a chemical laboratory at the New England Baptist Hospital. I can honestly say it was the first real clinical laboratory in Boston. At the Brigham, the General and the City, chemistries were done by the interns. The pups had to do them and if you know anything about blood chemistry, you know that’s wishful thinking, because the determinations were about as inaccurate and as guessey as could be. It was a very interesting experience organizing a hospital that had never used a blood



Dr. Blackfan on Grand Rounds—a student’s view.



chemistry lab, and getting it functioning smoothly.

Townsend was a grand person. He took my wife and me to his home and made us feel like part of his family. Between graduating from medical school and taking an internship I had nine months off. Mrs. Townsend was a granddaughter of Webster, of the New Hampshire Websters, and the Townsends had built a house in Belmont but had run out of money during the Depression.

Townsend made me a proposition: would I finish the inside of the house using some of the pine boards they had found in Webster's barn. Nobody else had dared to touch them. They were scared of them. These were pine boards, 34 inches wide and 10 feet long. Some of them had lost the knots and I had to search the barn for matching knots and glue them in place. To make a long story short, I had a great deal of fun doing the cabinet work in their house. It is really a prize living room.

During my third year I took pediatrics at Children's Hospital. A very impressive pediatrician, Charles F. McKhann, assistant professor of pediatrics and communicable diseases, corralled me one day. He said, "We've got impetigo on the toddler's ward. I want you to go to work tonight at 7:00 and record everything you see going on in this group of 10 beds."

I said, "Well, gee, that's all night long?"

"Yes."

"All day long?"

"Yes," he said. "We've got to have one man's eyes look at this for 24 hours."

So I did.

Nothing happened of note until about 6:30 in the morning when the nurses changed shifts and made their daily report. All the nurses gathered at the head nurse's desk, about six of them. In walked this Amazon-type figure, suited in a stiffly-starched, gray-white pinstriped dress. She was the housekeeper. She had a mop and a dust rag, and she went around mopping the floor and dusting the window sills and all the bed rails. Every time she went by a toddler leaning over the foot of the bed, she'd grab him by the left ear, shake him a little bit and say, "You cute little kid, you. What a nice little tyke." That's why all the kids had impetigo in their left ears. It was my introduction to hospital nosocomial infection.

I've never forgotten Charles McKhann, and I've had the privilege at several meetings of the American Soci-



*Harvey Cushing, 1932*

ety of Microbiology to relate this story. About eight years ago, who was sitting in the front row but Charles McKhann. We had a great reunion. It shows you the way you learn from practical experience. I've been a consultant to about 400 hospitals in various kinds of difficulty with nosocomial infections, and Charles McKhann has walked the steps every bit of the way as I sleuthed the causes.

Another character I'll never forget is Francis Newton, instructor in surgery. He was an extraordinarily meticulous technical surgeon and made a tremendous impact on me. He could do the most detailed procedure without losing blood. He taught the dog surgery course and how to be kind to the dogs. He also taught us anesthesia. Newton's empathetic explanation of the impact of a malpractice suit that prompted George Derby's suicide, added a vital, ethical dimension to my maturation.

When I came to teach dog surgery I imitated him, but I was too impatient and not as gentlemanly as he so I made the course more vigorous. But I was very much impressed by the fact that in that three-month section, one afternoon a week, you could turn an unfocused kid into a good surgeon—a kind, caring physician who was concerned about a living patient for whom he was responsible. Somebody who could identify with a dog and could read the dog's eyes.

Another experience that had a great impact on me occurred in Harvey Cushing's operating room. As a fourth-

year student, I was drafted to help prepare for a Kimpton-Brown transfusion. The equipment consisted of a burette with a tapered s-shaped nozzle at the bottom, which was inserted first into the donor's vein and subsequently into the recipient's. The glass was coated inside with paraffin to delay clotting.

We had a very noisy resident by the name of Richard Meagher. He had a big moustache, looked like a walrus, and used to bark like one. He assigned me to put the paraffin in the tube. I had never done it before, but I heated the tube over an alcohol lamp to spread the film of paraffin and sealed it in place with a stopper fitted with a suction bulb. Then, with Dick Meagher screaming and hollering directions, I inserted the quill-like stem into the incised phlebotomy at the donor's elbow. The bulb was squeezed repeatedly to suck blood from the vein.

As the tube filled, the anesthetist demanded more blood. So with them yelling more, more, and me pumping harder and harder, the tube suddenly imploded and splattered everywhere. I muttered, "Jesus Christ, there must be a better way."

"Who said that?" asked the chief. "Come down to my office right after the surgery."

So I went down to Cushing's office. He was still angry that somebody should curse in his operating room. I asked him why his nails were brown; they were stained by mercuryoxy-cyanide. We started talking about disinfection of the skin. Finally, he asked, "Have you got a better way to transfuse blood?"

"No." I said.

"Well, you better find one." That's where my interest in blood banking started.

These recollections describe how HMS sets kids on fire and motivates professional careers. Most of the clinical medicine I learned in medical school was obsolete by the time I finished residency. But, the behavior pattern of how to recognize and get on with solving problems in surgical care has been unforgettable. □

*Carl W. Walter '32 is clinical professor of surgery, emeritus, though his has been a multifaceted career, including medical invention, founding and directing an industrial firm, leading the development of fire and electric safety in hospitals, researching aseptic technique and control of nosocomial infections, organizing national instruction for operating room nurses, and directing the HMS Alumni Fund for 12 years.*



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H I G H   A N X I E T Y :

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# A Morning in the New Pathway

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**I**t felt like the first day of school. A member of the Class of '52, I was scheduled to spend a morning in the New Pathway, to experience what the first-year students of the Class of '94 are encountering. In preparation, those of us alumni who had signed up for the morning's demonstrations had been issued the case of a young woman with attacks of panic. Adeline was to serve as the occasion and catalyst for a study of mood disorders. Understanding and treating her problem involved neuroanatomy, physiology, biochemistry and pharmacology. Pertinent information would come through cooperative research, lectures and tutorial sessions. The hope of the New Pathway is that all this will be more understandable, better retained and better integrated than before.

Mood disorders: anxiety, panic, rage, euphoria, love . . . My mood was one of mild anxiety as Will Cochran '52 and I drove in from Weston. I remembered Dean Burwell and the patient he presented to our class very early in our first year. I remembered the dean's patrician, immensely learned manner and his enormous gray eyebrows. A number of us wore flannel

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by George Bascom

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shirts to his Saturday session, and he scolded us for it. Respect for the patient and the art called for shirt, tie and jacket.

In retrospect, the presentation was notable for several landmarks against which we can measure change. First, it was just about our only patient contact for the next two years. Second, the dean was a clinician, still active in patient care. Third, he censured us on our dress, certain of the consensus he expressed. And last, it never occurred to us to question his authority to dictate a dress code, even though many in our class were, like my friend Will, veterans of World War II. We knew our place.

We were there to learn; he was there to teach. What we needed to learn was his business. Ours was to pass, to survive.

Of course, if one were bucking for honors, initiative was called for along with a certain indifference to the sensibilities of duller or less driven classmates. We suffered a dismal reminder

of mediocrity every time grades were posted. Most of us got by on compliance and adequate effort. Anxiety found relief in lots of ways. Dick Moersch ran the halls of Vanderbilt with spikes, some got drunk on weekends, some dropped out, one went mad.

On the way in from Will's fine old colonial home we passed along the Charles, where crews were out in the early sunshine. Will rowed on what he claimed was one of Harvard's worst crews. It is a bond between us since I was on one of the worst of Kansas State's legendary bad football teams. We talked sports, but as he pulled into the Beth Israel parking garage, Will began to tell me his chewing gum story. It is one of terror and courage, apropos to our topic in the New Pathway.

Will flew a night fighter off a carrier in the Pacific in World War II. His task force had attacked Japan in mid-winter 1945, and afterward retreated into the shelter of a heavy snowstorm. Will was on the catapult for the midnight to 2:00 AM watch, revving up his motor every half hour to be ready for instant flight.

Everyone was nervous about a



counter-strike. Snow swirled over the deck in gale force winds, the carrier was pitching in heavy seas, and spray broke over the bow. It was a carrier pilot's nightmare. Will didn't chew gum normally, but on this night he was as he sweated out his watch. As we bounded up the steps of the Education Center building, Will promised to finish the story later.

We were a little late—habitual with me as a student. We hurried through the beautiful atrium, down a corridor and through wooden doors to a well-lit, elegant amphitheatre. We took our places in a middle tier of comfortable swivel chairs, whose fabric harmonized with the carpeting and the ambience.

Dan Federman '53, dean for medical education, was explaining the origins of the New Pathway with his usual comfortable eloquence. The audience of 150 was intent on his words. It was a varied group; white hair and black, lined faces and smooth, vigorously young and honorably retired. Dan explained the New Pathway as a response to three perceived defects in the classic system: first, there is just too much to learn, so skills in acquiring new information become critical; second, students were too passive in the old learning dynamic; and third, basic science was compartmentalized into the first two years of medical school.

The goal of the New Pathway is to

interweave science and clinical medicine, he said, emphasizing principles rather than details. The method is tutorial and based on problem solving. Dan grinned a little as he predicted we would feel the tension of "not knowing enough." He told us it was okay to learn other things than other students did in the morning ahead.

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*Dan grinned a little as  
he predicted we would  
feel the tension of  
"not knowing enough."*

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Across the room I saw Henry Grunebaum '52. As sophomores back in 1950, Henry and I, along with a few others, had written a report on education for the benefit of the dean. Basic sciences were hermetically sealed from one another. We cried for relief from repetition and from disjointed attention to the same system in various courses. We were very young. And we were right.

One tier below was another classmate, John Malcolm, whom thoracic surgery and time had given a Churchillian look. John was headed for tutoring in Room #116 with me after the lecture.

The lecturer ambled down from the back. David Potter, Robert Winthrop Professor of Neurobiology, is tall and lean with a close cropped gray beard. He was in his shirtsleeves, easy and thoroughly confident, and spoke without notes. He put us into context by describing the lecture that normally preceded his. That lecture covered the monoamine neurons, which have much to do with depression, panic disorders and anxiety.

Anxiety made me think of Will on that heaving catapult, but Dr. Potter recaptured my attention by announcing his topic, the neurologic basis of pleasure.

The anatomy of pleasure, if you please, involves a subset of neurons in the ventral tegmental area and in the nucleus accumbens, as well as the tracts between. A screen rasped down and, with deceptive simplicity, Potter outlined the experiments that identified these centers. Electrostimulation of these areas leads to euphoria. Cocaine, morphine, heroin, amphetamines, alcohol and probably nicotine can stimulate them. Dopamine is the major neurotransmitter involved.

A rat that can self-stimulate its



*Daniel Federman, dean for medical education, explains the origins of the New Pathway to alumni "students."*



nucleus accumbens acts like a crack addict. Ignoring all else, it will press its lever repeatedly hour after hour until it reels away and crashes from exhaustion. It will endure pain to get at the lever. Someone laughed at the thought of the rat startled by a shock on its way to the pleasure lever.

Potter closed by mentioning observations on humans that supported the work on rats. Stimulation of the nucleus accumbens in a few people with chronic pain has been very helpful. The clinical implications of this basic work touch addiction, manic euphoria and pain control. But, he warned us, these experiments were done with biologic "sledgehammers." Normal neural function is subtle, complex and delicate. He ended with the research worker's Amen: there is so much more to be done.

I gathered up my notes and went to our tutorial room, genuinely interested in what we had heard, more interested than I could remember after any previous lecture on neurology.

Our tutor was Thomas Glick, a keen young neurologist, whose tan and habitus suggested a hobby of running. He greeted us with a penetrating, blue-eyed gaze and a reassuring manner. He was intensely interested in what we had to say, but conveyed a sense of safety. I dared to hope he wouldn't bag us. Remembering Dan Federman's remark about the "tension of not knowing enough," I seated myself with these Harvard grads, all I suspected a lot smarter than I.

Memories of subtle competition, roundsmanship and the pitiful camouflage of ignorance floated into my mind in response to my anxiety. I tried to recall the mutual support and affectionate understanding we knew as students, feelings that were the basis of lifelong friendships. It didn't help. The tension was there. I was a student again and I didn't like the feeling. I didn't want anyone to know how little I knew.

That is the dark secret worn at our hearts in medicine. We never know enough, and we all could know more if we worked at it a little harder. We eventually learn that we don't have to know it all and we can't spend all our time in study. But from time to time what we don't know is suddenly embarrassing. Here in the classroom I felt as if about to be exposed. The curse of youth is to be tested, tested, tested; to be tried and found wanting. The curse was working on me.

After the six of us had settled ourselves around a heavy polished wood table in the small tutorial room, our



*George Bascom '52 talks with Frank Lepreau '38 during a study break.*

tutor asked, "Who wants to read the case summary?"

Gordon Magonet '80 volunteered and read it in a clear, precise voice. The patient, Adeline, was 27 and was having fits of dizziness, rapid heart rate, sweating. She felt something terrible was going to happen. She was overwhelmed, about to lose control. When she had a fit she had to pull her car over and stop. For a moment, the picture of this young woman in her car fused with that of Will Cochran on the catapult in his night fighter.

When Gordon finished reading, Tom Glick looked around and said, "Pitch right in."

John Malcolm lifted his hand in a curiously old-fashioned request to speak. John wasn't happy about the description of her heart sounds. He thought her panic attacks might be associated with mitral valve prolapse. My God, I thought silently, I never

heard of that! Someone else wanted to know if Adeline had been on drugs. Glick encouraged us to think aloud. I offered the diagnosis of psychomotor epilepsy. Glick gently informed me it wasn't a term being used today, but he knew what I meant. Today they are "complex partial seizures."

John wanted an echocardiogram. Gerald Lazar '67, a young, bearded psychiatrist at the end of the table said, "Well, what about primary anxiety?" Arthur Baldwin '36 thought we could rule out vestibular dysfunction. Hypoglycemia was offered, hyperthyroidism, pheochromocytoma.

Petit mal came up. Gordon pointed out that our patient remembered her attacks and didn't fit the picture. Baldwin said he was worried about a brain tumor, and I agreed. Carbon monoxide was considered and discarded. John came back to brain tumor. He told us about a surgical friend whose first symptoms were lying down and falling asleep beside his patients in the recovery area.

From time to time Glick interjected a fact or interpreted something. He pointed out the importance of distinguishing petit mal from complex partial seizures because their treatment differs. In Alzheimer's the—did he say nucleus basalis?—is depleted of cholinergic transmitters. The nucleus ceruleus is an adrenergic center and is important in depression and panic disorders.

I had the absurd vision of the nu-

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*John Malcolm lifted  
his hand in a curiously  
old-fashioned  
request to speak.*

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cleus ceruleus in our patient lighting up during an attack. He asked us how we distinguish between normal and abnormal anxiety? I thought again of Will in his fighter, Adeline in her Honda with the same physiologic responses. It seemed to me the distinction depended on the external circumstances, and even then was something of a value judgment.

We students were all more relaxed by now, largely because Glick was unfailingly patient though impressively informed. But we old doctors were getting a little impatient to make a diagnosis. So Glick gave us the next sheet of information, which told us our patient was getting worse and had been referred to a neurologist. She was given Valium to hold her until she could be seen. Our group thought that was a mistake. We discussed anxiolytic drugs a little, and Gordon was telling us tricyclics effectively prevent panic attacks, as our first tutorial hour ended.

We broke, stretched, and strolled through the handsome carpeted skills area a floor above our tutorial room. Computers there invited us to learn about prostaglandins and other molecular wonders. A good looking tall, blond third-year student pulled on her latex gloves and cheerfully hauled a normal brain out of its jar. A skeleton dangled in one corner. Light shone through CT scans on a view box. Books and articles were laid out.

Computers intimidate me, but Will sat down at one and masterfully called forth information to the screen. Of course, Will was a gung ho Navy pilot.

I avoided the computers and knew no more about panic after an hour in the skills area. I was glad National Boards were behind me.

Our group was pretty friendly by the time the second hour began. Having theoretically researched our patient's puzzling problem, we received some more information about her. Adeline's neurologist found nothing wrong. I asked if a normal EEG ruled out psychomotor seizures. Glick said it did not but that it did rule out petit mal. William Thomas '61, a tall, engaging orthopedic surgeon, brought back a computer sheet from the skills area, like a big game hunter with a pelt. It didn't help us much, just overwhelmed us with differential diagnoses, including several we hadn't thought of—Chinese restaurant syndrome, for God's sake!

We pretty well narrowed our diagnosis down to panic attacks or complex partial seizures. My money was on the latter. I think our red-bearded psychiatrist Lazar was leaning the other way. We were all hedging our bets a little, having been stung by reality before.

So I was disappointed when the case ended with a diagnosis of panic attacks after all. If Lazar felt triumphant, he hid it like a gentleman. It was well he did because, in a departure from usual practice, the case was supplied with an alternative ending involving, hurrah!, complex partial seizures.

In the few minutes remaining, Glick led us through GABA receptors, but I had shaken the hook by then and was lost to him. I wondered what the

acronym stood for but hadn't the nerve to ask. Before we left he came back to mitral valve prolapse and panic, and told us the connection wasn't as well established as he had once thought.

I asked how the New Pathway was for him. He said he enjoyed it far more than conventional hospital teaching. It is hard but rewarding. The tutors learn a lot, both from the students and from interdisciplinary meetings before a section is started. At those meetings, a great interchange of information occurs as they work toward specific and demanding learning objectives. Those objectives are given in writing to the students for their guidance.

I had enjoyed an interesting and informative morning in the New Pathway. If every lecturer and tutor are as good as Potter and Glick, it can hardly fail to educate students well. My education was driven by the fear of examinations—probably the worst of all reasons to learn, provoking as it does a sullen resentment. Yet for the immature and lazy, it works. Such students—and there is a little of that in almost all of us—may be left behind in this system. For the genuinely interested and self-directed, it seems a great opportunity to pursue especially fascinating lines of inquiry, while mastering the necessary basic requirements. Learning is hard work in any system.

On the way out, I spoke briefly with Arthur Guyton '43A, a distinguished physiologist and teacher at the University of Mississippi. His reaction,





*A good-looking tall,  
blond third-year student  
pulled on her latex  
gloves and cheerfully  
hauled a normal brain  
out of its jar.*

I gathered, was less sanguine than mine. While granting that gifted and well-motivated students would thrive in the system, he feared that students with average assets would not get enough basic science. Perhaps as a tribute to the excellence of Harvard medical students, they do score better than average on the National Board examinations. And their scores are drifting upward while the national average is drifting down.

We bade Guyton farewell and headed back out to Longwood Avenue, where we were narrowly missed by a bus. I reminded Will of his story, and he finished it as we worked through Boston traffic to Logan Airport.

He had heard a knock on his canopy. He cranked it up, letting in a blast of freezing wind and snow. An officer told him radar had picked up blips 80 miles off. Will was ordered to investigate. He was terribly nervous, chewing gum furiously as the catapult thrust him into the darkness.

At full power he climbed to 20,000 feet, breaking into a bright, moonlit sky above the clouds. His unmuffled engine made a terrible roar. As he circled above the vast task force in the great storm below, he noticed a rhythmic rise and fall in his engine noise. His radio contact, a good friend on the carrier below, gave him his bearings but Will was worried about his engine. It sounded like power surges to him, engine malfunction. He leaned forward to check the instrument panel and unconsciously stopped chewing as he did. The engine noise evened out, and he made the connection. He had been chewing so hard it affected his hearing.

He was embarrassed, radioed that his problem was solved and headed for the blips. At the indicated range he dove into the dense storm clouds,

searching with his radar for enemy aircraft. He found none. The blips were from dense storm activity.

Will headed back to his carrier. At full power he had burned a lot of gas. He asked if it would last until dawn. The answer was that his tanks would be dry by 4:00 AM.

Only the night before the task force had not altered course to land a pilot friend who was out of fuel. Advised to jump, he was never seen again. Will was being given a chance to land, but visibility was nil and the sea heavy enough to make the carrier pitch and roll. He dropped to 75 feet, his altimeter needle bobbing erratically over the wild water. He found the dim outline of the carrier on radar and made his pass over it. Though fully lit for him, the carrier was able to show him only a dim spot from one vertical light through the dense snow as he swept over the deck.

Will swung around on his approach and came in blind. His radio was silent; no one could see to reassure him. As he closed, he hit a pocket of turbu-

When they opened the canopy, his hands were fluttering wildly. He couldn't speak coherently or climb out of the cockpit. The crew hauled him out and supported him across the flight deck. His legs wouldn't work and he still couldn't talk anything but gibberish when he went below. The ship's doctor examined him, gave him a cigarette and some whisky, talked with him a couple of hours, and Will slowly came around.

By now we were sitting by the curb at Logan. Will explained he had been prepared for sudden death. Carrier pilots knew they could go any time from a bullet, a crash, anti-aircraft fire, a mid-air collision. But he had always expected it to be quick. He didn't mind risking his neck in a flash of hazard, getting it over with like a gunfighter—oblivion or another drink. That kind of death was okay. This other kind—circling until his fuel ran out, then parachuting or plunging into the icy Pacific—was terrible to contemplate. Will said he still has a surge of adrenalin when he tells this story.



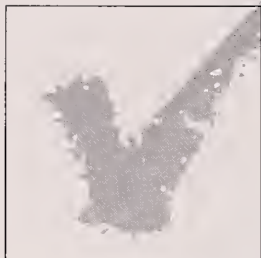
lence, momentarily thought he was flying into the stern, suddenly saw the landing officer's fluorescent stripes flash by. Trained never to cut his power until signalled to do so, nevertheless he calculated with lightning speed, concluded he had missed the signal, cut his power, blew a tire, slewed toward the edge of the deck, and suddenly lurched to a stop.

He couldn't unbuckle his harness.

Well, I had a full day at school. I learned a lot in the New Pathway about pleasure, anxiety, depression and panic from the faculty and my fellow students. And something about stress and courage from my friend Will. □

*George Bascom '52 is a general surgeon in Manhattan, Kansas, and is known also as poet laureate of his class.*





## ALUMNI SURVEY RESULTS:

# A Career Fulfilled?

by Michael P. Massagli and Floyd J. Fowler

*Responding to an increasing number of articles in both the lay and professional press and to letters from alumni, the Alumni Council discussed the subject of physician discontent at their fall meeting in October 1988. Robert Goldwyn '56, now president of the Alumni Council, expressed the concerns of alumni in a letter to then president Doris Bennett '49 in June 1988: "From the many letters, calls, comments and even my election, in response to my pre-election statement, I can assure you that many, many alumni, perhaps the majority of those who take daily care of patients, are in professional pain . . . The trauma is psychic even more than it is financial, although the latter is becoming increasingly serious."*

*The council appointed a "Subcommittee on the Alienated Physician," charged with determining how widespread was the alienation, its causes, and what might be done about it.*

*The subcommittee, chaired by Paul J. Davis '63, met that December and recommended that the HMS survey committee be reactivated to survey a representative sample of alumni. Subsequent to acquisition of this data, the subcommittee suggested that a symposium be organized to discuss the results.*

*The survey was completed with the help of Floyd J. Fowler, PhD, and Michael P. Massagli, PhD at the Center for Survey Research at UMass/Boston and a report was submitted to the Alumni Council in October 1990. Their summary of the survey results follows.*

*As the authors point out, approximately three-fourths of the respondents reported feeling positive about their choice of a career in medicine. At the same time, none of them felt that medicine is more satisfying or less stressful than it used to be.*

*Simultaneously, a number of other studies on this topic have been published or are in preparation, including*

*two done by the AMA and the Robert Wood Johnson Foundation, which reported that 44 percent of "older" (i.e., over age 40) doctors would not apply to medical school if they were graduating from college at the present time, and that 34 percent of those under 40 also answered in the negative. This past November the Institute of Medicine sponsored a workshop on "The Era of Physician Discontent: Defining the Problems, Searching for Solutions."*

*There is, as yet, no consensus on the extent, causes, and remedies for this discontent, but from the attention being paid to the problem, one can safely conclude that it is a major concern of our profession.*

*This summary of the survey will be a point of departure for the symposium on Alumni Day, Friday, June 7, 1991. The results of the survey will be explained, and distinguished physicians, health care analysts and policy makers will lead a discussion of issues raised. The input of all interested alumni—either in writing prior to the symposium or in person during it—is sincerely requested.*

*—E. Langdon Burwell '44  
Chairman of the Survey Committee*

**R**ichard Knox, medical editor for the *Boston Globe*, wrote: "While doctors differ on their diagnosis of the malaise, there is a remarkable consensus about its magnitude. Veteran physicians, medical leaders and educators, policy mavens and sociologists say they have never seen anything like the widespread angst afflicting U.S. doctors today" (*Globe Magazine*, 3/19/90).

Are graduates of Harvard Medical School alienated from medicine? Are unrealized or unrealistic expectations common in their medical careers? How do career expectations held at graduation compare with the current realities of medical practice? What do HMS graduates think about current trends in the organization of health care in the United States? What do HMS graduates think about recent public policy proposals aimed at improving medical care? These questions guided the work of the Alumni Survey Committee, chaired by E. Langdon Burwell '44, that resulted in the 1990 survey of HMS graduates: "A Career in Medicine: A Promise Fulfilled?"

The Survey Committee worked with the Harvard Medical Alumni Council, the Alumni Office, and the Center for Survey Research at the Uni-



versity of Massachusetts/Boston to design a survey to collect information on the extent of physician alienation from medicine. In January 1990 a questionnaire about the professional activities, problems, feelings and opinions of graduates was mailed from the Alumni Office, under the direction of Nora Nercessian, PhD, to a stratified random sample of 1,514 HMS graduates.

Excluding those who were deceased or for whom no address could be obtained, the eligible sample was 1,444. Over three-fourths (1,096) responded by April 1990. The data were coded and tabulated at the Center for Survey Research, where Michael P. Massagli, PhD and Floyd J. Fowler, PhD analyzed the data. A preliminary report was given to the Alumni Council in May 1990, and a final report was presented to the council in October 1990. This is a summary of some of the highlights and conclusions of that report.

**H**ow does one measure alienation? Surely, no one could agree on a single question or set of questions as a perfect measure of this complex and diversely defined concept. However, as a start, all sampled graduates were asked the following question: "How do you feel about your choice of a career in medicine today? Very positive, generally positive, neutral, somewhat negative, or very negative." The overall distribution of responses to this question is shown in Table 1. In general, HMS graduates feel positive about their careers in medicine. Overall, 77 percent replied that they felt either very positive or generally positive about their choice of a career in medicine. Fewer than 15 percent characterized themselves as feeling negative.

A second approach to measuring how things are going is to ask respondents to rate those aspects of work about which they care most. The survey respondents rated the importance of various possible reasons for entering medicine—for example, an interest in biomedical science, an interest in helping people, job security, income potential, status and prestige, professional autonomy—and how well their current work situation provided opportunities for achieving the implied goals. Analysis of responses to the two sets of ratings revealed two important facts.

First, three values stood out as very important to respondents in choosing their careers: an interest in helping people (69 percent), intellectual stimu-

**Table 1. Current Feelings About the Choice of a Career in Medicine**

Alumni Group	Feelings about Career (Percentage)			Number of Respondents
	Very Positive	Generally Positive	Neutral or Negative	
All alumni	36	41	23	1034
<b>Age</b>				
Under 40 years old				
Men	30	52	18	131
Women	23	53	24	153
40 to 59 years old	32	44	24	415
60 years or older	48	31	21	370
<b>Specialty</b>				
Primary care	36	43	21	448
Nonsurgical specialty	38	42	20	310
Surgical specialty	35	38	27	269
<b>Income from Practice</b>				
under \$60,000	30	46	24	243
\$60,000–\$99,999	38	36	26	264
\$100,000–\$149,000	38	43	19	220
\$150,000–\$199,000	43	39	18	109
\$200,000 or more	32	42	26	129
<b>Hours Worked per Week (Not in Residence or Retired)</b>				
under 50 hours	38	40	22	179
50 to 64 hours	34	46	20	382
65 hours or more	33	44	23	249
<b>Malpractice Experience</b>				
Never named in a suit	39	40	21	459
Named, at least 1 suit	30	45	25	300
No judgments against	30	48	22	194
1 or more judgments	30	41	29	106

lation (66 percent), and interest in working directly with patients (52 percent). Despite some images to the contrary, job security (16 percent), status (10 percent), and income (6 percent) were not often cited as very important reasons for entering medicine.

Second, respondents were very likely to report that their current work situation afforded them good to excellent opportunities for achieving those goals that they cited as important reasons for entering medicine; only 3 percent rated their opportunities to help people as fair or poor, and 4 percent gave such ratings to the intellectual stimulation of their work.

There were some characteristics of work that were rated as fair or poor by as many as one alumnus in four: opportunity to conduct research (51 percent); leadership opportunities (35 percent);

professional autonomy (26 percent); income (26 percent). Yet none of these aspects of work was rated as a very important factor in choosing medicine by as many as one physician in three.

As would be expected, the tendency to rate the opportunities offered by practice as only fair or poor was higher among respondents who reported feeling negative about their careers. We looked for other correlates of negative feelings among respondents. Some variation in responses occurred in specific subgroups of graduates, yet most often this only involved significant differences in the proportion of responses of very positive versus generally positive. Differences in the proportion of neutral or negative responses were rarely significant.

For example, the top of Table 1 presents answers by age and, for those



under 40 (the only age group with a notable number of females), by gender. Nearly half of respondents over age 60 (virtually none of whom are female) reported feeling very positive about their choice of a career in medicine, compared with less than 30 percent of those under age 40. Among graduates in the youngest age group, men were slightly more likely to report very positive feelings, and women were slightly more likely to report neutral or negative feelings. This difference is not statistically significant. Overall, there was no reliable relationship between age or gender and the likelihood of feeling neutral or negative about a career in medicine.

Close to half the HMS graduates work in primary care, including pediatricians and internists as well as general and family practice; the balance are split about evenly between specialists who perform surgery and those who do not. Table 1 shows a slight tendency (close to statistically significant) for surgeons to be more negative about their careers than others, and, as shall be seen later, there were a number of other ways in which surgeons saw the issues in medicine differently from those in other types of specialties.

Among HMS graduates, income differs greatly. Among the currently working graduates who report earning less than \$60,000 per year, about 40 percent are still in training. However, even including those in training, the median income from medicine is about \$100,000, and over 10 percent make more than \$200,000. Seventy-four percent of respondents rated their income as very good or excellent, which means a quarter think their income is only fair or poor. Sixty-six percent said their incomes had gone up as fast or faster than inflation over the past five years, which means about a third thought they had not kept up with inflation. Thus there is some reported dissatisfaction with income.

However, income is not significantly related to reported feelings about a career in medicine; those with incomes over \$200,000 were as likely to feel neutral or negative as those making less than \$100,000. Although graduates who report that their incomes have not kept up with inflation also are more dissatisfied, the income of those who are dissatisfied is the same as that of more satisfied graduates.

The number of hours physicians work is also a potential concern. Forty-hour weeks are rare among HMS graduates. Over a third of currently working respondents reported they work more



*Over 70 percent of  
this group reported  
positive feelings about  
their medical career.*

than 65 hours per week, and fewer than one in four reported an average work week under 50 hours. However, no association between career feelings and the hours worked per week by respondents was found. In fact, graduates who reported that they feel neutral or negative about their careers work about the same number of hours as others, but they are more likely to report they spend more time working than they want to spend.

Even the presumably negative experience of being sued for malpractice was not strongly associated with career dissatisfaction, as shown in the last panel of Table 1. About 40 percent of respondents in active clinical practice said they had been named in a suit, and about a third of those (about 15 percent

of all those practicing) reported that a judgment had been made against them. HMS graduates who had one or more judgments against them were more likely to feel negative than those who had no judgments, but over 70 percent of this group reported positive feelings about their medical career.

Overall, it is difficult to find objective aspects of their work that explain why certain respondents report negative feelings about their medical careers.

Another series of questions asked respondents to report the extent to which various aspects of their current professional activities—such as the time they must devote to work, the stress of professional responsibilities, keeping up with new knowledge in a specialty, and concerns about malpractice—were a problem (major, moderate, slight, none, or not applicable). The list was compiled by the survey committee to get readings on what they thought might be common problems for physicians. The fact that six of the nine items were rated at least a moderate problem by 40 percent or more of all respondents suggests that the committee did a good job of identifying problems.

Table 2, in the far right column, presents the rate at which each item

**Table 2.** Percentage of Alumni Reporting Major or Moderate Problems in Current Practice (excludes retired and resident alumni), by Medical Specialty

	Primary Care	Nonsurgical Specialty	Surgical Specialty	Total
Time must devote to work	49	42	51	47
Concerns about malpractice	32	38	67	42
Reimbursement policy set by third parties	46	54	70	54
Third-party guidelines for treatment	40	36	65	45
Stress of professional responsibilities	49	47	45	48
Business management	33	33	45	35
Keeping up with new knowledge in specialty	57	42	33	47
Too little time to spend with patients	28	17	20	22
Quality of doctor/patient relationships	12	12	16	13
Number of respondents	349	246	177	772



was rated as a problem. Perhaps the only surprise in that part of the table is that two items related to patient relations (quality of doctor/patient relationships, and too little time to spend with patients) were only rarely rated as problems by respondents.

The first three columns of Table 2 break down responses separately by the specialty of the respondent. It can be seen that surgeons and primary care physicians differ greatly in four of the nine ratings. Surgeons are much more likely than primary care physicians to rate the following as problems: concerns about malpractice (67 versus 32 percent); reimbursement policies by third parties (70 versus 46 percent); and third party guidelines for treatment (65 versus 40 percent). On the other hand, primary care physicians were much more likely than surgeons to consider keeping up with current knowledge to be a problem (57 versus 33 percent).

So there are clearly some problems according to HMS respondents. Moreover, the nature of the problems often differs importantly by the specialty of the physician. Overall, however, the above data do not document widespread bitterness, anger or apprehension about the practice of medicine among Harvard graduates.

The survey data suggest an interesting mismatch between the reports of graduates of their own career experiences and satisfactions, and the images they report of medicine as a whole. A series of questions was asked in the questionnaire, starting with: "How do you think medical careers today compare with those of 25 years ago?" Respondents were asked about their perceptions of eight different aspects of medical careers. Two results stand out in particular:

- There was a high level of consensus about the answer to five of the eight questions.
- In all cases in which there seems to be consensus, the consensus is that things are the same or worse today than they were 25 or 30 years ago; virtually no one thinks things are better now.

The strongest examples are shown in Table 3:

- Ninety-eight percent of alumni responded that the *stress* on doctors in their specialties is the same or greater today than it was 25 years ago: 69 percent think it is more, 30 percent think it is the same.

- Ninety-two percent of alumni responded that the personal satisfaction of doctors in their specialty is the same or less than it was 25 years ago: 46 percent think it is less, 46 percent think it is the same.
- Ninety-nine percent of alumni responded that doctors today strive to maximize their incomes the same or more than they did 25 years ago: 59 percent think it is more, 40 percent think it is the same.

produces people oriented more toward income maximization probably are not positive images. However, these may be images that characterize other professions as well. Some of these images are not different from the generally negative characterization of young professionals ("yuppies"), which seems to be widespread in American society.

Nonetheless, it is obvious from these data where some of the concern about medicine as a career originates.

**Table 3. Perceived change in medical practice**

Percentage saying:	Greater	About the same	Less
<b>Compared to 25 years ago:</b>			
The stress on physicians now is:	68	29	3
The personal satisfaction of physicians now is:	7	46	47
The extent to which physicians strive to maximize their income now is:	59	40	1

Answers were tabulated by numerous respondent characteristics, and the answers were surprisingly consistent. For example, the views of more recent graduates were not consistently more or less positive about the life, talents and motivations of current doctors than the views of those in earlier classes. Nonsurgeons tended to be a bit more positive about medicine today than surgeons, but not much. Moreover, when there were differences between groups, they do not greatly vary from the strong pattern of basic agreement presented in Table 3.

Perceptions that medicine is more stressful, less personally satisfying, and

These negative images are widespread and consistently held among these generally very successful physicians.

The survey also was seen as an opportunity to elicit alumni views about the problems facing medical care in the United States and about some possible ways of addressing those problems. Two relevant series of questions were asked. First, a set of questions asked "To what extent do you see (various problems) adversely affecting patient care in the United States?" The response categories were: a great deal, some, little, or not at all. A second set of questions were in the following form: "Various strategies have been proposed to improve health care in the United States. How do you think the following suggestions would affect health care?" The response categories ranged from much better to much worse.

The survey responses suggest that there is no shortage of sentiment that there are problems with medical care in the United States, but also indicate that not all respondents see the same issues as problematic. Table 4 shows the distribution of response about three problems, by specialty group.

Concerns about the effect of malpractice are shared by most graduates, but specialists are more likely than primary care physicians to respond that



*Nonsurgeons tended to be a bit more positive about medicine today than surgeons, but not much.*



**Table 4.** The Extent of Adverse Effects of Selected Issues on Medical Care in the U.S., by Medical Specialty

	Primary Care	Nonsurgical Specialty	Surgical Specialty	Total
<i>Physician concerns about malpractice adversely affect medical care:</i>				
A great deal	42	53	55	49
Some	49	41	37	43
Little or none	9	6	8	8
	(100%)	(100%)	(100%)	(100%)
<i>Access problems of under- or uninsured patients affect medical care:</i>				
A great deal	69	67	47	63
Some	24	25	41	29
Little or none	7	8	12	8
	(100%)	(100%)	(100%)	(100%)
<i>Third-party regulation of patient care in the private sector affects medical care:</i>				
A great deal	37	45	49	43
Some	43	39	40	41
Little or none	20	16	11	16
	(100%)	(100%)	(100%)	(100%)
<i>Number of respondents</i>	451	316	276	1044

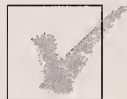
these concerns adversely affect medical care. By contrast, there is a great deal of concern about the adverse effects of access problems of under- and uninsured patients, but surgeons were much less likely than other specialists or primary care physicians to express such concerns. Finally, opinions were also divided about the impact of third-party regulation of patient care decisions, with primary care physicians being less likely than others to think it is adversely affecting medical care.

Turning to the solutions to problems facing medical care in the United States, the survey revealed that the most popular reform would be to produce a no-fault reimbursement system for patients with bad outcomes (see Table 5). Seventy-nine percent of all respondents said they thought such a program would make medical care better, while only 8 percent said they thought it would make medical care worse.

On the other side, respondents were overwhelmingly convinced that a national health service, with most physicians employed by the government, or a private variation, where most physicians worked for managed health care systems, would make medical care in the United States worse. Very few thought such programs would make

medical care better. In both these respects, surgeons and nonsurgeons tended to see things in a very similar way.

Perhaps the most interesting data in Table 5 are the responses to a universal national health insurance program—the federal government as the only insurer. Such a proposal, essentially the Canadian model, has a good deal of support in this country. Given the fact that respondents rated access problems of under- and uninsured people as perhaps the most important medical care problem in the United States today, and that the Canadian model is one solution, the appeal of this proposal should



*So, is the physician  
who graduated from  
Harvard alienated,  
or not?*

be obvious. On the other hand, concerns about regulation that might come with the federal government as the sole insurer obviously would push respondents in the opposite direction.

In fact, one interesting feature of the response is that almost no one (only 5 percent) thought such a program would *not affect* the quality of medical care. However, there was quite a division of opinion about what the effect would be. Fifty-eight percent of respondents thought such a program would make medical care worse, whereas 37 percent thought it would make medical care better. In this case, the distribution of answers was very different between nonsurgeons and surgeons. Surgeons were much more negative about a national health insurance program than nonsurgeons. Forty-five percent of primary care physicians thought that a national health insurance program would be better, while that was the case for only 20 percent of those in surgical specialties.

While the division of opinion was clearest with respect to universal national health insurance, the answers to nearly all of these questions were positively correlated. That means that people who were more willing to intervene in the medical system in one way tended to be more willing to intervene in others. There was a tendency for some people to think that any interventions in a free medical market system, including paying medical school tuition, were likely to make things worse, while another set of people thought reform and intervention could in fact make things better.

For the most part, nonsurgeons were more likely to think that reforms or major changes would make things better, while surgeons were more likely to think that all proposals for interventions would make things worse.

So, is the physician who graduated from Harvard alienated, or not? At a personal level, it seems as if the clear majority of respondents have found or have created satisfying careers in medicine. They give their work high marks for intellectual stimulation and for helping people, which were the most common reasons these people said they chose medicine. They average over \$100,000 per year in income, and three-quarters rate their incomes good or better than that. They do work extraordinarily long hours, and nearly half rate the amount of time they devote to work to be a moderate or major problem. Yet overall, over three-

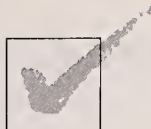


quarters report positive feelings about their career choice.

So where is the alienation? Well, one could say that there are too many of this select group with outstanding training and career opportunities who feel neutral or negative about their careers. Although it would be unrealistic to expect everyone to be positive, perhaps 25 percent is too many.

One way to put the number in perspective is by comparison to other groups. We cannot compare current satisfaction with how physicians 25 years ago would have answered the same questions. We could, however, gather data that would permit comparing the answers of physicians with those in other professions. We also could gather comparable data from a broader sample of physicians to find out whether or not the responses of Harvard graduates are distinctive. It is certainly plausible that the careers of Harvard graduates are distinctive; that their careers work out particularly well. Both of these extensions of this study would help us to assess the meaning of the data that were collected.

Regardless of how we assess the level of personal career satisfaction, there is no doubt that there are some



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negative images about trends in medicine that are very common. The fact that virtually no graduates think medicine is more satisfying or less stressful than it used to be is food for thought. We again lack comparative data from the past, but those and similar perceptions are the sort that would lead to the conclusion that physicians are alienated from their work, even if the individual reports of satisfaction do not seem consistent.

Finally, the various efforts to manage, regulate, and sue doctors clearly are seen as problems by most, if not all, respondents; more so by surgeons than nonsurgeons. Although there are some dissenters, the clear majority viewpoint among almost all subgroups of respondents is that the medical care system will work best if physicians are allowed to practice with a minimum of outside interference.

Most respondents in this survey would agree that access to care is a problem, and would support efforts to improve access, but the majority viewpoint clearly is to do that in a way that does not give the federal government or other regulators more say in how physicians do what they do. At the same time, efforts to manage what doctors do are clearly on the rise.

Therefore, the data tell us that the careers of Harvard Medical School graduates usually are personally satisfying but demanding. HMS graduates definitely perceive problems in medical practice, but those problems do not seem to alienate individual physicians from a role in medicine; hardly any reported that they left medical practice because of these problems. Those problems do, however, produce rather widespread concerns that the role of medicine in society is adversely affected by the government and others who are trying to shape medical practice.

The data from the survey, in aggregate, indicate enough concern about enough aspects of medicine's role to explain the perception of malaise expressed in the quotation at the beginning of this article. Yet there is considerable diversity of individual physician circumstances, as well as great diversity of opinions about problems and possible solutions. The high rate of personal career satisfaction is also potentially at odds with perceptions of problems in the profession as a whole. Given these results, it is easy to see why it will be hard to reach consensus on the policies and structures that will best serve physicians and the practice of medicine. Nonetheless, the data help to clarify the issues as Harvard Medical School graduates see them and make a contribution to more informed discussion about the future course of medical practice. □

**Table 5.** The Effect of Changes in the Medical Care System on Medical Care in the U.S., by Medical Specialty

	Primary Care	Nonsurgical Specialty	Surgical Specialty	Total
<i>If the right to sue physicians was limited and replaced by a no-fault system, medical care would be:</i>				
Better	83	77	76	79
About the same	11	13	14	13
Worse	6	10	10	8
	(100%)	(100%)	(100%)	(100%)
<i>If there were a universal, national health insurance program medical care would be:</i>				
Better	45	40	20	37
About the same	5	5	5	5
Worse	50	55	75	58
	(100%)	(100%)	(100%)	(100%)
<i>If most medical care was delivered by managed health care systems, medical care would be:</i>				
Better	16	16	9	14
About the same	19	16	11	16
Worse	65	68	80	70
	(100%)	(100%)	(100%)	(100%)
Number of respondents	451	316	276	1044

*Michael P. Massagli, PhD and Floyd J. Fowler, PhD are senior research fellows at the Center for Survey Research of University of Massachusetts at Boston.*





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